

Appendix A: Plan Review

The project team reviewed the following plans to inform the development of the Transportation Plan: the 2018 Bloomington Comprehensive Plan, the 2017 Bloomington/Monroe County MPO Metropolitan Plan, and the Indiana University Bloomington 2010 Campus Master Plan. The team reviewed these plans to understand concurrent and previous planning efforts and to understand how Bloomington plans to develop in the future. Additionally, the City of Bloomington's Bicycle and Pedestrian Transportation and Greenways System Plan; and Indiana University's Bicycle Master Plan were also reviewed, but they are not summarized below.

2018 Bloomington Comprehensive Plan

The recently adopted 2018 Bloomington Comprehensive Plan positions Bloomington to achieve excellence through collaboration, creativity, cultural vitality, inclusion, and sustainability¹. The Comprehensive Plan sets forth an aggressive agenda whose core principles commit Bloomington to:

- Committing to equality, acceptance, openness, public engagement, and celebrating culture.
- Establishing downtown as the center of the community while simultaneously ensuring each neighborhood has access to services and mixed-use centers.
- Ensuring that land development positively impacts the community, and promoting infill development.
- Prioritizing historic preservation and environmental responsibility.
- Ensuring residents have access to basic needs, equitable economic opportunities, education, and quality housing, and encouraging a resilient and environmentally responsible public.
- Providing safe, efficient, and accessible transportation that focuses on public transit, walking, and biking.
- Encouraging healthy lifestyles.
- Improving public safety and civility, and offering forward-thinking local government services.
- Investing in equitable and high-quality economic development, which establishes the community's role as a regional economic hub.

Incorporating these core principles in the Transportation Plan is essential because they embody the community's core values.

¹ City of Bloomington. 2018 Comprehensive Plan. 2018 Accessed on 8/6/2018. Available at: https://bloomington.in.gov/sites/default/files/2018-03/Final%20Council%20Amended%20CMP%20web_0.pdf

The Comprehensive Plan also outlines general policies, goals, and projects for the Transportation Plan. This includes five general policies that the Transportation Plan should include²:

- "Provide and maintain a safe, efficient, accessible, and connected system of transportation that emphasizes walking, public transit, biking, and shared travel methods to enhance options that reduce our overall dependence on the individual automobile."
- "...Minimize injury and the loss of life from transportation-related crashes by using vehicle speed suitability linked to the context of adjacent land uses, modal safety priorities, and congestion and air quality outcomes."
- "Ensure that the safety and convenience of all users of the transportation system are accommodated in the daily operations and maintenance of the existing transportation network, and that future transportation system investments likewise accommodate all users."
- "Recognize the City's constrained ability to expand or widen most roadways within an urban and built context, such that retrofitting existing roadways and designing innovative solutions for pedestrians, transit users, shared riders, and bicyclists are considered before roadway widening."
- "Identify locations where new or improved transportation facilities are needed while establishing a land use and transportation context to guide the scope, scale, context, and priority for any (public/private) transportation capital improvement project."

In addition to these five general policies, the 2018 Comprehensive Plan also identified seven transportation goals that are supported by a variety of policies and programs. The seven goals are:

- Goal 6.1: Increase Sustainability: Improve the sustainability of the transportation system.
- Goal 6.2: Improve Public Transit: Maintain, improve, and expand an accessible, safe, and efficient public transportation system.
- Goal 6.3: Improve the Bicycle and Pedestrian Network: Maintain, improve, and expand an accessible, safe, and efficient network for pedestrians, and attain platinum status as a Bicycle Friendly Community, as rated by the League of American Bicyclists.
- Goal 6.4: Prioritize Non-Automotive Modes: Continue to integrate all modes into the transportation network and to prioritize bicycle, pedestrian, public transit, and other non-automotive modes to make our network equally accessible, safe, and efficient for all users.
- Goal 6.5: Protect Neighborhood Streets: Protect neighborhood streets that support residential character and provide a range of local transportation options.
- Goal 6.6: Optimize Public Space for Parking: Plan and develop parking for cars and bicycles with a focus on efficiency and equity.
- Goal 6.7: Educate the Public: Increase residents' safe use of transportation options that minimize negative environmental and infrastructure impacts.

² City of Bloomington. 2018 Comprehensive Plan. Pg. 73.

The goals underscore the importance of providing a safe, equitable, and sustainable transportation system, and act as the backbone to the Transportation Plan.

Finally, the Comprehensive Plan identifies focus areas in Bloomington that are expected to see significant change in land use activities over the next decade. These focus areas are integrated throughout the Transportation Plan to ensure that changes in land use are paired with supportive transportation infrastructure and, where necessary, new roadway connections. These areas include:

- Certified Technology Park and the Trades District
- I-69 and Interchanges
- Switchyard North
- Gateway North
- Gateway South
- Regional Academic Health Center
- West 2nd Street Former Bloomington Hospital Site
- West Fork Clear Creek

2017 Bloomington/Monroe County MPO Metropolitan Plan: Transform 2040

The Transform2040 Plan maintains a 20-year planning horizon for Bloomington and Monroe County and identifies future transportation needs³. Transform2040 proposes solutions to transportation needs, along with supportive policies. The project team identified projects from Transform2040 that represent preferred travel routes for motorists, bicyclists, and pedestrians, and are within Bloomington or within one mile of Bloomington's jurisdictional boundary. The projects are categorized by responsible agency and listed below.

Monroe County Projects

- **Fullerton Pike/Gordon Pike/Rhoder Road – Phase II**
 - Start: West Terminus of Phase I
 - End: S Rogers St
 - Description: Capacity Preservation – road reconstruction and safety improvements with curb, gutter, bridges, sidewalk, and pathway.
 - Complete Streets: Compliant
- **Fullerton Pike/Gordon Pike/Rhoder Road – Phase II Bridge**
 - Start: West Terminus of Phase I
 - End: S Rogers St
 - Description: Capacity Preservation – roadway bridge structure with sidewalk and pathway.
 - Complete Streets: Compliant
- **Fullerton Pike – Phase III**
 - Start: S Rockport Rd
 - End: S Rogers Rd
 - Description: Capacity Expansion – New road construction from Rockport Rd to Wickens St and road construction from Wickens St to Rogers Rd; construction of new three-lane road connection with new bridge over tributary to Clear Creek and Clear Creek Trail. Multiuse path on one side of the road with sidewalk on the other side of the road, and on-street bicycle lanes.
 - Complete Streets: Compliant
- **Curry/Woodyard/Smith Roundabout**
 - Start: Curry/Smith/Woodyard
 - End: Curry/Smith/Woodyard
 - Description: Safety - replacement of Curry Pike/Woodyard Rd/Smith Pike intersections with a "dog-bone" roundabout configuration.

³ City of Bloomington. Transform2040. 2017. Accessed on 8/6/2018. Available at: <https://bloomington.in.gov/sites/default/files/2018-01/BMCMPO%202040%20Metropolitan%20Transportation%20Plan%20-%20FINAL%20Adoption%20-%202012-15-17.pdf>

- Complete Streets: Compliant (FY 2018-2021 TIP)
- **North Hartstrait Road and North Daniels Way**
 - Start: N Hartstrait Rd
 - End: N Wellness Way & N Knapp Rd
 - Description: Capacity Expansion – new road extension connecting N Hartstrait, N Wellness Way, and N Daniel Way. Pathway on one side of road with sidewalk on opposite side.
 - Complete Streets: Pending
- **North Sunrise Greetings Court**
 - Start: W Vernal Pike
 - End: W Profile Parkway
 - Description: Capacity Expansion – new road extension and railroad grade separation connecting to W Vernal Pike. Pathway on one side of road with sidewalk on opposite side.
 - Complete Streets: Pending
- **West Profile Parkway**
 - Start: N Curry Pike
 - End: N Gates Drive
 - Description: Capacity Expansion – new road extension for connectivity. Pathway on one side of road with sidewalk on opposite side.
 - Complete Streets: Pending
- **North Unnamed Way**
 - Start: W Profile Parkway
 - End: W Jonathan Dr
 - Description: Capacity Expansion – new road extension for connectivity. Sidewalks on both sides.
 - Complete Streets: Compliant
- **South Kirby Road**
 - Start: W Airport Rd
 - End: W State Rd 45
 - Description: Capacity Expansion – new road extension for connectivity. Pathway on one side of road with sidewalk on opposite side.
 - Complete Streets: Pending
- **West Airport Road**
 - Start: W State Rd 45
 - End: S Leonard Springs Rd

- Description: Capacity Expansion – new road extension for connectivity. Pathway on one side of road with sidewalk on opposite side.
- Complete Streets: Pending
- **West Church Lane & South Rogers Street**
 - Start: W Church Ln
 - End: S Rogers St
 - Description: Capacity Preservation – intersection realignment. Pathway on one side of road with sidewalk on opposite side.
 - Complete Streets: Pending
- **West Church Lane**
 - Start: Jackson Creek Park Connector & S Rogers St
 - End: S Old State Rd 37
 - Description: Trail/Non-Motorized – multiuse path on north side of S Old State Road 37.
 - Complete Streets: Compliant
- **South Old State Road 37**
 - Start: S Orchard Ln
 - End: S Fairfax Rd
 - Description: Trail/Non-Motorized – multiuse bicycle and pedestrian trail, and multimodal and pedestrian improvement of the intersection at S Old State Rd 37 and S Fairfax Rd with W Church Ln.
 - Complete Streets: Pending
- **South Fairfax Rd**
 - Start: S Old State Rd 37
 - End: S Walnut St Pike
 - Description: Trail/Non-Motorized – multiuse path on north side of S Fairfax Rd.
 - Complete Streets: Pending
- **South Curry Pike**
 - Start: W Constitution Ave
 - End: W Belle Ave
 - Description: Trail/Non-Motorized – pathway/multiuse trail and multimodal and pedestrian improvement of the intersection at S Curry Pike and W Constitution Ave.
 - Complete Streets: Pending
- **Karst Farm Greenway 2nd St Connector Trail**
 - Start: W State Rd 45
 - End: Karst Farm Greenway

- Description: Trail/Non-Motorized – multiuse path with a combination of on-street and off-street improvements on W Sierra Dr, S Curry Pike, W Constitution Ave, and S Liberty Dr.
- Complete Streets: Pending
- **Karst Farm Greenway Phase II-B Connector Trail**
 - Start: Karst Farm Greenway II-B (north end) / N Loesch Rd
 - End: Karst Farm Greenway II-B (south end) / W Woodyard Rd
 - Description: Trail/Non-Motorized – multiuse path with a combination of on-street and off-street improvements.
 - Complete Streets: Pending
- **Jackson Creek Park – Clear Creek Connector Trail**
 - Start: Clear Creek Trail / W Church Ln
 - End: Jackson Creek County Park
 - Description: Trail/Non-Motorized – multiuse path with a combination of on-street and off-street improvements.
 - Complete Streets: Pending
- **State Road 446**
 - Start: S State Rd 446 & E Moores Pike
 - End: Paynetown SRA
 - Description: Trail/Non-Motorized – multiuse path with a combination of on-street and off-street improvements along S State Rd 446 and S Knightridge Rd.
 - Complete Streets: Pending

City of Bloomington Projects

- **West 17th Street**
 - Start: N.A.
 - End: N.A.
 - Description: Capacity Preservation – reconstruction of a new two-lane road connection between Crescent Rd and Monroe St pathway on one side of road with sidewalk on other side of road.
 - Complete Streets: Pending
- **Adams Street**
 - Start: Countryside Ln
 - End: Allen St
 - Description: Capacity Expansion – construction of new two-lane road connection (to be implemented by future development). Pathway on one side of road with sidewalk on other side of road.
 - Complete Streets: Pending

- **Tapp Road & Rockport Road Intersection**
 - Start: Tapp Rd
 - End: Rockport Rd
 - Description: Capacity Preservation – intersection improvement to correct a skew, improve sight distance and geometry, and add pedestrian and bicycle facilities.
 - Complete Streets: Compliant
- **Henderson Street Multiuse Path**
 - Start: Hillside Dr
 - End: Winslow Rd
 - Description: Trail / Non-Motorized – multiuse path construction.
 - Complete Streets: Compliant
- **Jackson Creek Trail**
 - Start: Southeast Park / Arden Dr
 - End: High St and then to Sherwood Oaks Park / Goat Farm, then south on Rhorer Rd, then east to Sare Rd
 - Description: Trail / Non-Motorized – multiuse path construction.
 - Complete Streets: Compliant
- **Rogers Road Multiuse Path**
 - Start: North side of Rogers Rd at the Jackson Creek Bridge
 - End: The Strands Dr
 - Description: Trail / Non-Motorized – multiuse path construction.
 - Complete Streets: Compliant
- **Pedestrian Safety & Accessibility Signalized Intersections**
 - Start: Various locations
 - End: Various locations
 - Description: Safety – installation of pedestrian signal heads with continuous timers and accessible pedestrian push buttons at City-maintained signals and pedestrian hybrid beacons.
 - Complete Streets: Compliant
- **Winslow Road Multiuse Path**
 - Start: Henderson St
 - End: Highland Ave
 - Description: Trail / Non-Motorized – multiuse path on north side of Winslow St.
 - Complete Streets: Compliant
- **2nd Street / Bloomfield Road Pedestrian Safety Improvements**
 - Start: Landmark Ave

- End: Patterson Dr
- Description: Safety – improvements to the signalized intersections of 2nd St / Bloomfield Rd with Landmark Ave and Patterson Dr to include pedestrian signal indications and buttons, crosswalks, accessible curb ramps, at least one signal head per travel lane, signal head backplates, and other geometric improvements. Multiuse path construction along the north side of 2nd St between Adams St and Patterson Dr.
- Complete Streets: Compliant
- **Sudbury Drive**
 - Start: Weimer Rd
 - End: Rogers St
 - Description: Capacity Expansion – construction of new two-lane road connection (to be implemented by future development). Pathway on one side of road with sidewalk on other side of road.
 - Complete Streets: Pending
- **B-Line Trail Extension**
 - Start: Adams St Trailhead
 - End: Crescent Rd / 17th St multiuse path
 - Description: Trail / Non-Motorized – multiuse path construction.
 - Complete Streets: Compliant
- **School Zone Enhancements**
 - Start: Various
 - End: Various
 - Description: Safety – installation or improvement of school zones and school-related pedestrian crossings throughout the City.
 - Complete Streets: Compliant
- **Sare Road Multiuse Path**
 - Start: Moores Pike
 - End: Buttonwood Ln
 - Description: Trail / Non-Motorized – multiuse path construction on the west side of Sare Rd & Moores Pike and other intersection improvements at Sare Rd & Moores Pike and other intersections along the route as needed to facilitate pedestrian street crossings.
 - Complete Streets: Compliant
- **Weimer Road**
 - Start: Tapp / Wapehani Rd
 - End: Bloomfield Rd

- Description: Capacity Preservation – reconstruction for two Lns, intersection safety improvements, and the addition of pedestrian and bicycle facilities
- Complete Streets: Pending
- **Crosswalk Improvement**
 - Start: Various
 - End: Various
 - Description: Safety – improvement at pedestrian crosswalks located on streets owned and operated by the City (specific locations to be identified during the design phase).
 - Complete Streets: Exempt

Bloomington Transit (BT) Projects

- **Operational Assistance**
 - Start: N.A.
 - End: N.A.
 - Description: Operating Assistance – Federal, State and Local assistance for operation of BT's fixed route and BT's Access service including late weeknight service.
 - Complete Streets: Exempt
- **Purchase Passenger Shelters**
 - Start: N.A.
 - End: N.A.
 - Description: Capital Assistance – purchase passenger shelters.
 - Complete Streets: Exempt
- **Purchase Major Vehicle Components**
 - Start: N.A.
 - End: N.A.
 - Description: Capital Assistance – purchase engine and transmission rebuilds, tires, hybrid batteries, and other major vehicle components.
 - Complete Streets: Exempt
- **Purchase BT Access Vehicles**
 - Start: N.A.
 - End: N.A.
 - Description: Capital Assistance – purchase BT access vehicles.
 - Complete Streets: Exempt

- **Purchase Support Vehicles Replacement**
 - Start: N.A.
 - End: N.A.
 - Description: Capital Assistance – replacement of support vehicles including vans, SUVs, and a fork lift.
 - Complete Streets: Exempt
- **Two-Way Radio Communication Equipment**
 - Start: N.A.
 - End: N.A.
 - Description: Capital Assistance – replace two-way radio communications equipment at Grimes Ln facility and entire fleet of fixed route, BT Access, and support vehicles.
 - Complete Streets: Exempt
- **Diesel Bus Replacement**
 - Start: N.A.
 - End: N.A.
 - Description: Capital Assistance – replacement of diesel buses.
 - Complete Streets: Exempt
- **Hybrid Bus Replacement**
 - Start: N.A.
 - End: N.A.
 - Description: Capital Assistance – replacement of hybrid buses.
 - Complete Streets: Exempt
- **Replace Fare Collection Equipment**
 - Start: N.A.
 - End: N.A.
 - Description: Capital Assistance – replacement of fare collection equipment on buses and at garage facility.
 - Complete Streets: Exempt
- **Mobility Management Program**
 - Start: N.A.
 - End: N.A.
 - Description: Operating Assistance – continuation and administration of mobility management and voucher program.
 - Complete Streets: Exempt
- **Repair / Maintenance of Operations Facility**
 - Start: N.A.

- End: N.A.
- Description: Capital Assistance – repair and maintenance of Grimes Ln operations facility.
- Complete Streets: Exempt
- **Paratransit Fleet Security Cameras**
 - Start: N.A.
 - End: N.A.
 - Description: Capital Assistance – retrofit paratransit vehicle fleet with security camera technology.
 - Complete Streets: Exempt
- **Bus Tracking / Passenger Counting / Annunciator Technology**
 - Start: N.A.
 - End: N.A.
 - Description: Capital Assistance – replacement of bus tracking technology including automatic passenger counting technology and voice annunciator technology.
 - Complete Streets: Exempt

Indiana University Campus Bus Projects

- **Bus Replacement**
 - Start: N.A.
 - End: N.A.
 - Description: Capital Assistance – replacement of low-floor diesel buses [with] new low-floor buses.
 - Complete Streets: Exempt

Indiana Department of Transportation Projects

- **I-69 Section 5 Roadway Reconstruction**
 - Start: Kinser Pike
 - End: Victor Pike
 - Description: Capacity Expansion – conversion of State Road 37 to fully access controlled I-69.
 - Complete Streets: Exempt
- **I-69 Section 5 Environmental Mitigation**
 - Start: Kinser Pike
 - End: Victor Pike

- Description: Capacity Expansion – environmental mitigation activities with the conversion of SR 37 to fully access-controlled Interstate 69 from Kinser Pike to Victor Pike
 - Complete Streets: Exempt
- **I-69 Section 6 Roadway Reconstruction**
 - Start: I-69 Section 5 Terminus
 - End: Indianapolis
 - Description: Capacity Expansion – conversion of State Road 37 to fully access controlled Interstate 69 from terminus of I-69 to Indianapolis
 - Complete Streets: Exempt
- **SR 37 Pavement Project**
 - Start: Dillman Road
 - End: I-69
 - Description: Capacity Preservation & Maintenance – roadway repaving.
 - Complete Streets: Exempt
- **SR 45 at Tamarron Drive**
 - Start: SR 45 at Tamarron Drive
 - End: N.A.
 - Description: Safety – installation of HAWK signal for intersection pedestrian crossing.
 - Complete Streets: Compliant
- **SR 45 / 46 Bridge over Cascade Road Bridge Deck Overlay**
 - Start: SR 45 / 46
 - End: Over Cascade Road
 - Description: Capacity Preservation & Maintenance – pavement overlay of existing bridge deck.
 - Complete Streets: Exempt
- **SR 45 / Pete Ellis Drive & SR 45 / 46 Kinser Pike Signal Upgrades**
 - Start: SR 45 at Pete Ellis Drive and SR 45 / 46 at Kinser Pike
 - End: N.A.
 - Description: Safety – traffic signal upgrades.
 - Complete Streets: Exempt
- **Old SR 46 Bridge Painting**
 - Start: Old SR 46 (Arlington Road)
 - End: Over RD 45 / 46
 - Description: Capacity Preservation & Maintenance – bridge painting.

- Complete Streets: Exempt
- **SR 45 Pavement Overlay**
 - Start: SR 45 from SR 445
 - End: Maintenance Limits of I-69.
 - Description: Capacity Preservation & Maintenance – pavement overlay.
 - Complete Streets: Exempt

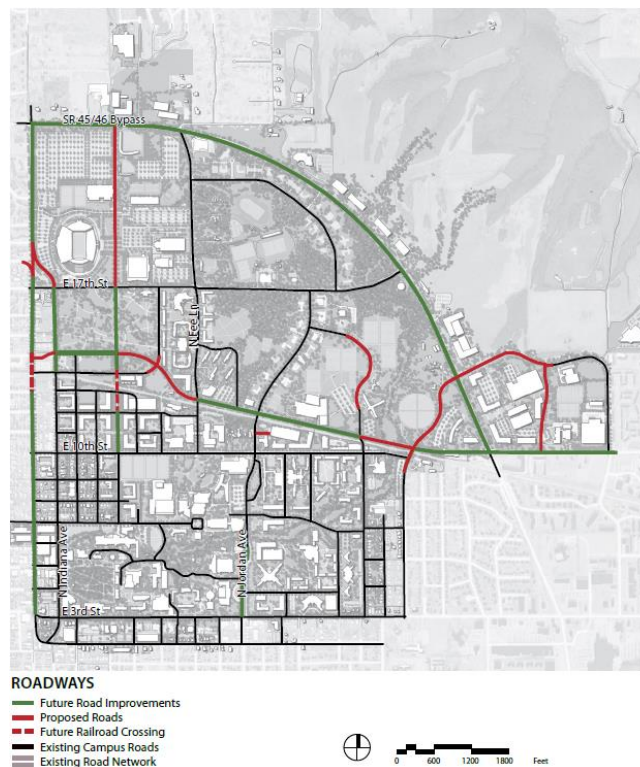
Indiana University Bloomington 2010 Campus Master Plan

Indiana University Bloomington has a Campus Master Plan, developed in 2010, to guide its campus development.⁴ According to Indiana University's Master Plan, the majority of campus users (90% of undergraduate students; 75% of graduate students, and 57% of faculty) live within three miles of campus, providing a significant opportunity for decreasing the impact motor vehicles have on campus, the community, and the environment. In the following sections, projects from the IU Master Plan are listed that might impact the City's Transportation Plan.

Roads and Vehicular Traffic

Indiana University Bloomington is planning to complete several proposed roads, road improvements, and railroad crossings. These are shown in the map below and are also listed.

Figure 1. Indiana University Bloomington 2010 Master Plan Roadways Map



- **East Law Lane Completion**

- Start: N Dunn St
- End: E 10th St
- Description: Complete E Law Ln between N Dunn St and E 10th St for a new east-west corridor.

⁴ Smithgroup JJR. Indiana University Bloomington Campus Master Plan. 2010. Accessed 8/6/2018. Available at: https://masterplan.indiana.edu/iub/IUB_Master_Plan.pdf

- **East Law Lane Alignment**
 - Start: N Fee Ln
 - End: E 14th St
 - Description: Align E Law Ln with E 14th Street past N Fee Ln for connection to N College Ave and N Walnut St.
- **East 10th St**
 - Start: N.A.
 - End: N.A.
 - Description: Reduce automobile traffic and congestion and enhance transit on E 10th St.
- **North Woodlawn Avenue Railroad Crossing**
 - Start: E 11th St
 - End: E 13th St
 - Description: Supply a new, controlled at-grade railroad crossing on N Woodlawn Ave for direct vehicular and transit access between the academic core and the athletics campus.
- **North Walnut Grove Railroad Crossing**
 - Start: E 11th St
 - End: E 13th St
 - Description: Replace the at-grade crossing at N Walnut Grove with the crossing at N Woodlawn Ave.
- **North Walnut Grove Alignment**
 - Start: E 13th St
 - End: E 14th St
 - Description: Realign sections of N Walnut Grove, E 13th St, and E 14th St north of the railroad to improve intersection design.
- **North Dunn Street and North Indiana St Alignment**
 - Start: E 17th St
 - End: E 19th St
 - Description: Realign N Dunn St and N Indiana St at E 17th St for better connection to the North Indiana Ave underpass at the railroad.
- **North Dunn Street Railroad Crossing**
 - Start: E 12th St
 - End: E 11th St
 - Description: Explore the feasibility of a new railroad crossing at N Dunn St.

- **North Range Road Extension**
 - Start: E 10th St
 - End: SR 45 / 46 Bypass
 - Description: Extend North Range Rd north to a signaled intersection at the SR 45 / 46 Bypass, and connect with E 10th St.
- **Research Park Reconfiguration**
 - Start: E 10th St
 - End: N Range Rd
 - Description: Reconfigure and / or remove internal streets within the Research Park and add a new north-south street from E 10th St to N Range Rd.
- **East 10th Street Intersection Reconfiguration**
 - Start: N Jefferson St
 - End: E Law Ln
 - Description: Reconfigure the E 10th Street intersections with E Law Ln and N Jefferson St to improve the underpass at the railroad.
- **East 10th Street Underpass**
 - Start: E 10th St
 - End: N.A.
 - Description: Explore the feasibility of a new underpass for E 10th Street and re-use of the existing underpass for pedestrian and bike only use.
- **North Union Street Realignment**
 - Start: E Law Ln
 - End: E Lingelbach Ln
 - Description: Realign N Union St north of the railroad to allow for future recreational sports fields and expansion.
- **East Lingelbach Lane Reconfiguration**
 - Start: N Union St
 - End: E 17th St
 - Description: Eliminate E Lingelbach Ln's direct connection to E 17th St to preserve the woodland area.
- **East 12th Street Reconfiguration**
 - Start: N Walnut Grove St
 - End: N Woodlawn Ave
 - Description: Reconfigure and / or remove parts of E 12th St at N Woodlawn Ave and N Walnut Grove St to create larger development parcels.

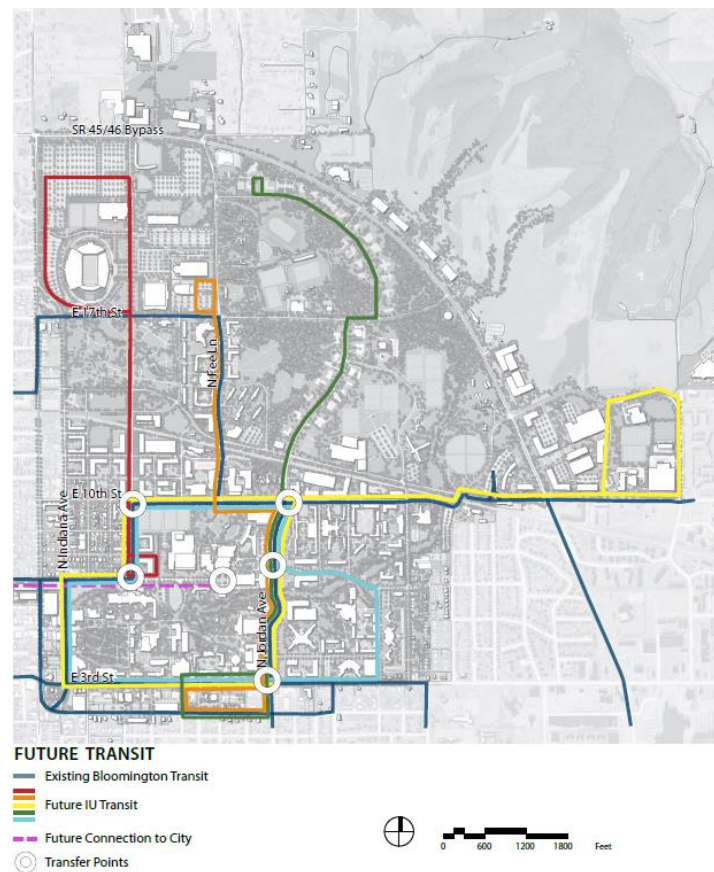
- **North Jordan Avenue Boulevard**

- Start: E 3rd St
- End: The Jordan River
- Description: Create a boulevard on N Jordan Ave south of the Jordan River to E 3rd St.

Transit

The University will develop future transit routes on campus to better improve circulation in addition to implementing one future connection to the City. These are important considerations for the Master Transportation Plan since the Plan is multimodal and should consider the impacts of increased transit connections. The future transit connections are shown in the map below and are also listed.

Figure 2: Indiana University Bloomington 2010 Master Plan Transit Service Map



- **North Woodlawn Avenue Transit Service Expansion**

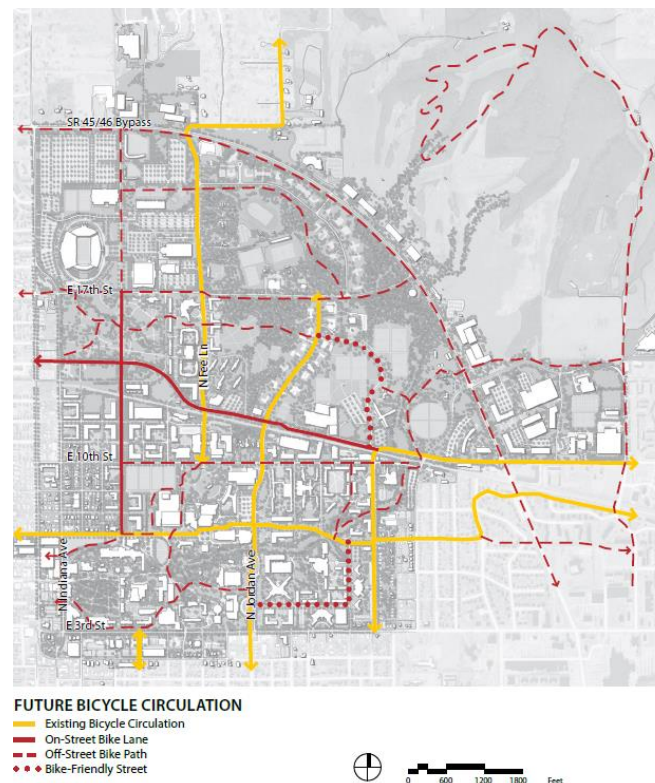
- Start: E 17th St
- End: N Jordan Ave

- Description: Create a simple north-south transit run on N Woodlawn Ave from E 17th St to the SR 45 / 46 Bypass within the athletics campus, utilizing the proposed rail crossing.
- **Athletics Campus Transit Service Expansion**
 - Start: N.A.
 - End: N.A.
 - Description: Create an internal bus transit route within the Athletics campus to serve commuter lots and off-campus apartments, utilizing the proposed N Woodlawn Ave pedestrian mall north of E 17th St.
- **Stadium Transit Stop Development**
 - Start: N.A.
 - End: N.A.
 - Description: Develop a combined transit stop, varsity team shop, possible bookstore, and coffee shop at the south end of the stadium.
- **Research Park to Central Campus Transit Service Expansion**
 - Start: N Indiana Ave
 - End: N Range Rd
 - Description: Create a new east-west bus route that connects the Research Park to the central campus.
- **Bus Route Realignment**
 - Start: N.A.
 - End: N.A.
 - Description: Simplify bus routes to have more direct runs and reduce redundant loops around campus.
- **Bus Transfer Point Development**
 - Start: N.A.
 - End: N.A.
 - Description: Create a series of bus transfer points on campus to facilitate transit links.
- **East 7th Street Transit Service Expansion**
 - Start: N.A.
 - End: N.A.
 - Description: Work with the City to develop a bus transit route on E 7th St from downtown to the Indiana Memorial Union building.

Bicycle Circulation

While Indiana University Bloomington is currently a silver-level Bicycle Friendly University as designated by the League of American Bicyclists, the University will expand its bicycle infrastructure in the future. The map and text below displays and describes future bicycle facilities proposed by the University.

Figure 3: Indiana University Bloomington 2010 Master Plan Bicycle Circulation Map



- **East Law Lane and North Woodlawn Avenue Bike Lane Expansion**
 - Start: S Union St; E 17th St
 - End: E 13th St; E 17th St
 - Description: Develop designated on-street bike lanes for E Law Ln and N Woodlawn Ave, a minimum 5-foot width, on both sides of the street.
- **Off-Street Multiuse Bike Path Expansion**
 - Start: N.A.
 - End: N.A.
 - Description: Develop connected off-street multiuse bike paths across campus.
- **SR 45 / 46 Bypass Multiuse Recreational Trail Expansion**
 - Start: E 10th St
 - End: N.A.

- Description: Develop a multiuse recreational trail along the SR 45 / 46 Bypass, and create bike- and pedestrian-safe crossings at signalized intersections at E 10th St and the proposed N Range Road extension.
- **Bike-Friendly Streets Expansion**
 - Start: N.A.
 - End: N.A.
 - Description: Develop bike-friendly streets on campus secondary roads with wide vehicle lanes and traffic calming to accommodate occasional bike use.
- **Bike Parking and Storage Expansion**
 - Start: N.A.
 - End: N.A.
 - Description: Add more bike parking and storage near major campus classrooms and destinations including the IMU, dining, and housing.
- **Covered Bike Parking Expansion**
 - Start: N.A.
 - End: N.A.
 - Description: Where feasible, include covered bike parking within parking decks and major destinations.
- **Bike Commuter End-of-Trip Amenities Expansion**
 - Start: N.A.
 - End: N.A.
 - Description: Where feasible, incorporate showers and lockers.
- **Campus Bike Repair Shop Feasibility Exploration**
 - Start: N.A.
 - End: N.A.
 - Description: Explore the development of a bike repair shop on campus.
- **Bike-sharing Program Development**
 - Start: N.A.
 - End: N.A.
 - Description: Develop a bike-sharing program.

Appendix B: Public Outreach

Public and stakeholder engagement was a key element in creating the 2018 Transportation Plan. Throughout the project, the project team talked with hundreds of Bloomington residents from all walks of life. The project team completed three key engagement activities:

- Charrette #1: During the first charrette, the project team held a four-day intensive public engagement session. They met with stakeholders and held a public workshop to shape the goals and core principles of the project.
- WikiMap: After the first charrette, the project team released an online, and interactive map called a WikiMap. The WikiMap provided an opportunity for the public to share their transportation needs and concerns by drawing on an online map.
- Charrette #2: After creating a draft plan, the project team held a second round of intensive public engagement sessions over three days. The project team met with City staff, stakeholder organizations, and the public to solicit feedback, suggestions, and concerns about the draft plan.

Charrette #1

The first of the two planning charrettes was four days long in January 2018 and included two public meetings and numerous one-on-one meetings with elected officials, chamber of commerce representatives, Monroe County planning and public works officials, Bloomington Transit representatives, Stone Belt representatives, and Bloomington residents. Approximately 80 and 40 residents attended the first and the second public meetings, respectively.

The planning charrettes included presentations, small group discussions, and voting exercises to encourage participants to engage with the Plan's development. The charrette participants shared their perspectives on what they liked and disliked most about the City's transportation network, what values should be included in Bloomington's street design, and what the transportation network is missing; each is shown in the word clouds below.

Figure 4. Attendees at the Workshop during the Charrette #1



Figure 5. Word Clouds from the first public meeting during Charrette #1



During the public workshop portion of the first charrette, the public had an opportunity to vote on their preferred goals for the Plan. The goal with the highest number of votes (149) was “Create/Maintain Sustainable Transportation,” while the goal with the lowest number of votes (26) was “Plan and develop parking.”

[Grab your reader’s attention with a great quote from the document or use this space to emphasize a key point. To place this text box anywhere on the page, just drag it.]

Figure 6. Ranked Goals from the first public meeting during Charrette #1

Project Goals

1

Create/ Maintain Sustainable Transportation

149 votes

2

Maintain efficient, accessible and safe network

116 votes

3

Protect neighborhood streets and characters

87 votes

4

Educate, collaborate, and enforce desired behaviors

55 votes

5

Plan and develop parking

26 votes

WikiMap

Online WikiMap Comments

As part of this project, an online interactive map-based survey (called a WikiMap) was used to better understand existing walking and bicycling issues and routes. Based on feedback from over 250 WikiMap responses, 65 percent of respondents felt that the City provides bicycling and pedestrian facilities on an “average” level of service. Nineteen

percent of respondents felt that the City provides facilities on an “excellent” level of service. Sixteen percent of respondents reported feeling unsure or that the City provides bicycle and pedestrian facilities at a “poor” level of service. In the face of pressure that upcoming changes and growth will place on the City’s transportation network, the City has an opportunity to take bold steps now to assure continued improvement and expansion of its pedestrian and bicycle facilities.

Perceptions of the City’s delivery of pedestrian and bicycle infrastructure is mirrored in the WikiMap respondent’s self-reported level of comfort walking and biking in Bloomington. Over 50 percent of respondents shared that they feel “okay” but not “completely comfortable”

walking and biking in Bloomington. The second largest group of respondents, almost 30 percent said that they feel “good; comfortable enough, but not great.” The City’s increasing focus on multimodal transportation can help improve the level of comfort for community members walking and bicycling in the city.

Figure 7. WikiMap Responses on City's Performance



How would you rate Bloomington's performance in providing appropriate bicycle and pedestrian facilities?

Figure 8. WikiMap Responses on Comfort

How pleasant is it to walk and bike in Bloomington?



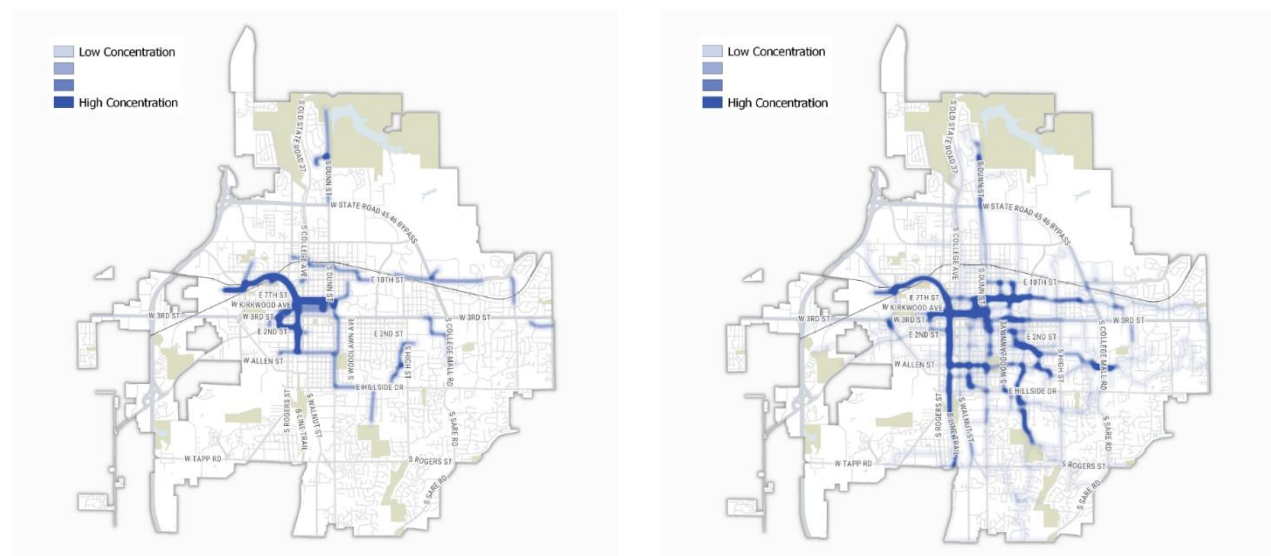
Popular Walking and Biking Routes, and Destinations

Figure 7 shows the preferred walking and biking routes in Bloomington. Based on the WikiMap responses, the most popular walking and biking routes are located in the center of the city. The B-Line emerges as the most popular north-south walking and biking route, while East 7th Street and East 4th Street are the most popular east-west walking and biking routes. For pedestrians, North Dunn Street and East 10th Street emerge as important routes, and limited popular routes appear on

the city's south side. Popular bicycling routes are more dispersed and include routes on the south side, including West and East Allen Street. Finally, the WikiMap responses also show the importance of establishing a well-connected active transportation network, as the most popular routes link together, primarily via the B-Line.

Walking and biking trips are most common near popular Downtown Bloomington destinations as well as near IU's central campus. Additional pockets of destinations appear outside of the central downtown area on the city's south, east, and north sides. While the retail center along West 3rd Street on the west side of town does appear to be a destination center on the heatmap, respondents did not identify any popular walking or biking routes for reaching it. In addition to the shopping amenities, Ivy Tech Community College Bloomington is located immediately to the west of the city's boundaries, along West 3rd Street. During the charrettes, multiple participants shared their desire to be able to comfortably access these commercial activities, job sites, and educational facilities using healthy, active modes such as walking, biking, or taking transit.

Figure 7. WikiMap Walking (left) and Biking (right) Routes



Difficult and High Traffic Routes

Figure 8 shows difficult and high traffic routes in Bloomington. The WikiMap survey respondents identified West 3rd Street and East 3rd Street west of South High Street as one of the primary difficult routes in the city. The survey respondents also identified North College Avenue, North Dunn Street, portions of East Tenth Street, East Second Street, West Tapp Road, and East Winslow Road as difficult routes. The identified difficult routes are concentrated along east-west roads in the center and south sides of the city. The most prominent north-south difficult routes are located

There is some overlap between the difficult routes maps and the high levels of traffic maps. This suggests that while high traffic levels could significantly contribute to the difficulty of using routes such as West 3rd Street, West 2nd Street, and East 10th Street, other factors are at play for different routes. Additional analysis should be conducted along these routes to better understand what contributes to their level of stress for pedestrians and bicyclists.

26

Desired Improvements

Respondents identified locations (Figure 9) where transportation improvements are needed. For this question, transportation improvements included elements such as improved sidewalks and bicycle facilities, street, and trail connections; congestion reduction; improved parking; and better transit service. The desired improvements' locations align with the respondents' reported popular destinations, with centralized activity in Downtown, and with pockets of identified improvements throughout the City.

Additional WikiMap Comments

In addition to the online WikiMap, the City of Bloomington distributed paper versions of the online survey to residents and local social service organizations. The following table shows feedback received from the paper version of the WikiMaps from the public and social service organizations (Figure 10). Please note that all identifying information for residents has been removed.

Figure 9. WikiMap Desired Improvement Locations

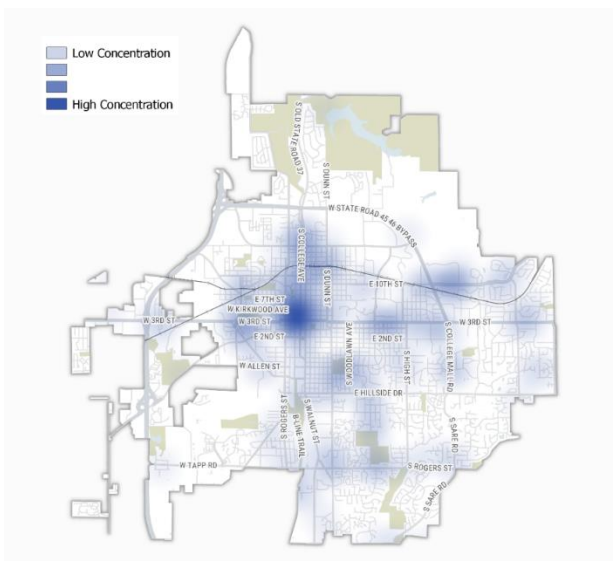


Figure 10. Public Paper WikiMap Comments

Type of Comment	Location	Comment
Requesting a stop light Concerns about high speeds and volumes	14th and Walnut Street	<p>We have been property owners since the late 1940's. As the city expanded, with changes, so did our family to changes on this site, and also adjacent property owners have made drastic changes effecting the flow of traffic between 14th and 15th Streets(CVS, Locked Up, Elkins Apartments, and several additional high rise apartment buildings on this route). This flow of traffic has changed, and is now an area with high speed and high volume, which is the reason for the following proposal:</p> <p>We would like to propose a needed stop light at the corner of 14th and North Walnut. There are no stop lights from 10th Street to 17th Street going north, which is a downhill section that encourages speed beyond the current speed limit, thus creating an increased number of accidents and major property damage between 14th and 15th Streets. Also the city has allowed street parking between 11th Street and 15th Street on North Walnut. This reduces the sight line beginning at 14th Street for cross traffic to oncoming traffic from Walnut. It creates a hazard to east west or vice versa traffic crossing Walnut to the high speed cars coming down Walnut. The city also has allowed high rise apartment buildings along the corridor of 12th to 15th thus increasing the traffic volume. This combination of new apartments, parking on the street, high speed traffic, and numerous reported and unreported accidents and speeding violations encourages a drastic need for a traffic light at the corner of 14th and Walnut. This action of a proposed stop light at 14th and Walnut by the Transportation Department would enhance the safety of pedestrians, bicyclists, and motorists; and reduce property damage.</p>
Parking		<p>I have not had a chance to go to the meetings about transportation but the only reason I regret this is that the subject of back in parking simply will not die in spite of wide spread disapproval of this idea. I know the arguments and I know that most citizens still do not want to see this happen.</p> <p>Just because the few who attend the transportation meetings like it, does not mean that the general public who will be subjected to it do. If someone must try this out, let it be in a little used area or better still, require all parking in the city lot to be back in. Let's try it and see how much everyone likes it. That would be something I might support. Otherwise we should not try to impose this on our mixed age community who truly is not ready for it. I just talked with some random people today and their opinion was that this decision was being pushed by the few who go to these meetings and they were discouraged to see this idea in the paper today. So was I. Sorry but I feel strongly about this.</p>
Transit		<p>a big goal for us is to provide Employment services support. Transportation is a barrier to employment. Transit access</p>
Bike/Ped Path	N. Dunn Street	<p>My husband and I are property owners in Matlock Heights. We strongly urge the city to install a multi-use path on N Dunn Street to allow access for walkers to go to the Griffey nature preserve or to cross the bypass and be able to go downtown. We frequently walk from our house downtown to get dinner or exercise and by far the most dangerous part of the walk is along North Dunn Street. From there everything is safe and easy.</p> <p>I couldn't make the meeting on Monday but have the following comments for the record: Overall we have a good network and the network is well maintained (potholes, etc) and serviced (snow removal, street cleaning, etc). I have the following concerns: 1) pedestrian refuge islands and "by right" pedestrian crossings need to be re-thought in two ways. First, the 10th street crossings by the business school and psychology have resulted in vehicle traffic failure that is not acceptable. Those crossings need to be removed or rethought. Pedestrian traffic lights? Having an IUPD cadet at busiest times directing traffic? Second, as a cyclist who rode about 3,500 miles in Monroe county last year, the pedestrian islands create dangerous pinch points. I've had several close calls on Rogers where cars try to pass me before or in the refuge island zone. I've also been honked at angrily when I take the whole lane to avoid those conflicts. In short, I think the refuge islands on 10th and Rogers are more harm than good. Going forward, We need to resist putting them any more else. They are particularly not acceptable on 3rd/Atwater or 17th. 2). Weimer needs to be rebuilt and widened. 3). Lights on west 3rd need to be timed.</p>

Type of Comment	Location	Comment
Bike ped traffic safety		<p>I wasn't able to stay past the initial presentation last night, so I didn't have a chance to have some input. Below are some suggestions for issues that might be covered in Transportation Plan.</p> <p>I like the company chosen to develop the Plan based on what's happened in South Bend in the past few years. I go there often because my daughter lives there. In the past five years, downtown has changed from no one on the streets at night to a livelier place. And, it's comfortable to be downtown. When they had the wide one-way streets, it appeared that the goal was to get people through South Bend without stopping. And, it was somewhat difficult to drive there. With the two way streets, it's much easier to navigate.</p> <p>I also like that they too pics in places where the current transportation is bad, challenging, or silly.</p> <p>Some issues that might be included:</p> <ol style="list-style-type: none"> 1. A careful analysis of the appropriate places and uses for bike routes, sharrows, bike lanes, and multi-use paths. My overall impression is that they are scattered through the City to increase numbers for a platinum designation but they don't seem to have a focus. Many seem not to be needed. 2. A plan for more education for drivers and bicyclists about the appropriate use of roads, streets, multi-use paths, and sidewalks. How vehicles and bike negotiate multi-use paths (and maybe sidewalks) should be a core part of the education. 3. Plans for transportation challenges that will arise from the development of Fullerton Pike and the new hospital. 4. The Plan should include all areas of the City including the southeast part to Rhorer Rd. 5. I hope something can be done about College Mall Rd, especially the north and south ends. Requiring pedestrians to cross 6 – 7 lanes at one time is too challenging. I also find the need for bicyclists travelling north to cross two lanes to make left turns and at the south end where bicyclists have to merge into the high speed lane to be very challenging. <p>I know you probably thought of most of these but I wanted to include my support for them.</p> <p>Thanks for listening. I will be there on Thursday to hear what is developing with the Plan.</p>
Bike ped traffic safety		<p>Thanks for considering these requests. I marked College Mall and Sare Rd on the Wiki over the weekend.</p> <p>Spicewood residents generally complain to each other about the traffic on Sare Rd and there's an awareness that Fullerton Pike and the new hospital may make it worse. I don't know what Hyde Park residents think about it. Sare Rd is designed to move traffic quickly for people who don't experience the problems with Sare Rd traffic. The new pedestrian islands may help but it may be the first step only.</p> <p>Bicyclists from the southeast have two troublesome routes into town – High Street and Sare/College Mall. I hope the new transportation plan thinks about ways to make bicycle travel easier.</p> <p>Thanks for listening.</p>
Bike ped traffic safety		<p>For Sare Rd, the neighborhood association hears complaints that sometimes the wait to get onto Sare Rd from Spicewood is too long. During the fall, I once counted 32 cars going south while I was waiting to get on to Sare. We expect the waits to increase as more traffic uses Sare to get into and out of town after more of Fullerton is completed. Nobody really complains about the traffic after they get on Sare. It travels pretty well and fast and should for some time.</p> <p>The Spicewood and especially Spicewood II residents also complain that it's very dangerous for pedestrians to cross Sare Rd. Walking along Sare requires a crossing because there aren't sidewalks on the west side. In the short run, the proposed islands should reduce some concerns. The multiuse path that was approved by the MPO last year should solve more of the problem.</p> <p>The multiuse path on High is much needed but it will end at Moore's. High St between Moore's and Third is relatively narrow and has a fair amount of traffic. It will still have some challenges for bicyclists. It would have been nice if the Jackson Creek multiuse path extended east to Sare instead of stopping at the entrance to The Stands. Maybe the travel planners could look at that.</p> <p>The two new multiuse paths makes it more important to develop some education on how bicycles and pedestrians interact with cars at intersections. I don't know who has the right of way at intersections when cars have to cross the multiuse paths when turning.</p>
Transit		<p>I am a student at Indiana University. I am a senior in the social work program, and because of that, I split my year doing an internship and classes. My internship this year is at Crawford Homes and Rapid Re-Housing Project which provides permanent supportive housing for individuals who experience chronic homelessness and suffer from other related issues such as mental illness, addiction, substance abuse, and disabilities.</p> <p>I am writing you today because I have been informed of the transportation plans that have been recently in the works. While I was unable to go to the meetings</p>

Type of Comment	Location	Comment
		<p>due to scheduling, I wanted to ensure that I speak on behalf of our residents here at Crawford. Transportation is something we struggle with here. While we are extremely grateful for the services that are already provided, there are gaps which need to be addressed with this population.</p> <p>To begin with, we are granted a certain number of bus tickets for each case manager. This means that our residents are extremely limited to the number of bus tickets they are given, and we are not always around to provide them. Because of the high demand, we run out fairly quickly, and need to wait until we are given the next batch. If given the opportunity, I know many individuals who do not have the means to gain access to transportation easily would benefit from more affordable bus fares, or more frequent pass availability. This would not only encourage our residents to go out and do things independently, but it would also be a tremendous help for when case managers are unavailable to take them to doctor appointments, or other various places they may need to go.</p> <p>There are several other issues which need to be addressed as well. Transfer times between buses are limited. Thus, if this were to be changed, individuals would be able to spend more time at where they need to be in order to get back on with the same ticket and not have to worry. Lastly, without there being a bus service on Sunday, people struggle to get to their designated workplace (if there place of hire is open), or their place of worship.</p> <p>Thank you for taking the time to read this email. I plan on having some of our residents fill out the survey that was provided, as our agency feels very strongly about these changes. It is important to recognize individuals who are struggling to make ends meet, and ensure that their voices are heard.</p> <p>Thanks again for you time, and I look forward to hearing from you!</p>
Transit		<p>I've been keeping up with the Bloomington transportation planning meetings and survey that have occurred over the past week and wanted to reach out to you with some community needs I believe are crucial for the city to consider while discussing plans for the upcoming years. As a Bloomington resident and social work intern at Amethyst House, a substance use recovery center here in town, I find myself compelled to speak on behalf of our lower-income neighbors who rely on our public transportation system.</p> <p>Like many other social service agencies in town, Amethyst House serves primarily lower income individuals who rely on Bloomington Transit for access to our services. In many cases, lack of transportation or funds for public transportation become one of the greatest barriers to our clients gaining employment and attending our services. In order to help ameliorate this barrier, Amethyst, like countless other agencies, obtains bus passes to give our clients. However, this is an expensive and unsustainable way to address the transportation needs of our clients when we have passes available. As a community, we can better serve low-income residents by providing a more sustainable, affordable alternative to bus access as well as increased hours for those work night and early morning shifts. In addition, the lack of Sunday public transportation denies many individuals the ability to work this day, as well as the opportunity to attend community or religious gatherings.</p> <p>While you move forward with plans for the city, I encourage you to take these needs into account and consider the many voices who may not have been represented in the planning meetings and online survey. Affordable, reliable, and accessible public transportation is critical to many in our community as they work to sustain employment, fulfill basic needs, gain access to social services, and engage in our community. Thank you for your time and for all of the work that you do for our lovely little town.</p>
Bike ped traffic safety	E. 10th / SR 45	E 10th Street, the curve just west of Smith Road is so dangerous. I almost hit a bicyclist, and I try to watch for bicyclist. The road is so narrow, has a curve and then goes into a hill. We need space for bicyclists and/or pedestrians here. It is too tight and people use this area frequently
None specified	Green Acres	live in Green Acres; want to voice a concern. On 10th street there is a railroad bridge near Eigenman and campus view. It has presented a large problem. Big trucks and buses can't get through. So instead, the buses and heavy trucks come through our neighborhood, and it wears and tears on the streets more. I see this as a big priority, especially if ambulances will be coming down 10th Street in the future to go to the hospital.
None specified	N. Dunn Street	Blue Ridge, calling in support of a sidepath at South Dunn Street. My husband and I both walk or run down that run. There's no shoulder or sidewalks. Cars travel at high speeds, and it's dangerous. The sides are really uneven. My husband almost sprained his ankle one time

Type of Comment	Location	Comment
Traffic	Southeast side of town	There is no southeast by-pass of Bloomington. If you look at Indy, 465 goes all the way around. So if you need to get to any part of the City, it might not be the shortest, but it can be the fastest. If you want to get to Columbus or somewhere to the east, there's no direct route to do this. I think a circular bypass makes sense. But, I don't know everything! I'd like to talk with you about it. No way to get to the football stadium, Assembly Hall, etc. if you're coming from the southeast. You get here and you have to worm your way around. You can go over to 37. But if you had a bypass that connected to 45/46, it would help make those connections. The southside is going to grow more (is my feeling) because it is close to the resevoir. A ring could help facilitate transportation to the Mall, to Whitehall Plaza, etc. Business invitee -- term in business law. Even though I'm not in the City Limits, I'm really in the City Limits [he lives at the Pointe]. Maybe a giftcard could let people park for free? I don't want Bloomington to be the loser. I want it to be the winner. It is already the most expensive place to live in Indiana. It needs to do something to make something better. This is based on Von Thunen's Model / Ring.
Pedestrian Accessibility	Neighborhoods	<p>All neighborhoods should have a priority pedestrian path to the downtown. This is like the right of residents to be able to get to their seat of government. I understand we don't have the funds to build sidewalks everyone in this town. But, the plan should identify a pedestrian corridor for each neighborhood in order to allow residents of that neighborhood to get to the downtown / City Hall / County Courthouse, etc. Please include these pedestrian corridors in the plan.</p> <p>I like the double map bus tracking system I don't like that Ivy Tech Student IDs don't give free transport when IU stdent IDs do. Its classist. I'd like more bus shelters along bus lines that run less frequently (like the 4) so theres somewhere to sit if you have to wait for an hour none except construction sites</p> <p>On time routines and app to help watch router. B-Line and bultiple bus stops through town.</p> <p>Drop off on way to location. There are no night time buses directly to Ivy Tech.</p> <p>Inside shelter that is open 24/7 in downtown Bloomington. Barriers for sidewalk is construction.</p> <p>Barriers for bus stops is traffice, not everyone stops at stop sign for pedestrian.</p> <p>No buses on Sunday. [We would like] buses on Sunday and Saturday that run the weekday times and [we would like] free bus rides for Ivy Tech Students</p> <p>We like the efficiency it's crowded. [We need] more [bus] shelters and do not like how small the shelters are</p> <p>We like the bus system but do not like the reckless student driving. We need more bus shelters, more sidewalks and less reckless driving near sidewalks</p> <p>Good overal system</p> <p>Color-coded routes are easy to follow w/time intervals for stops</p> <p>Price is affordable, free transfers</p> <p>Buses are faily clean</p> <p>Drivers can be friendly (but not always)</p> <p>Love the app!</p> <p>Route 2 worked well for transportation to work Routes end too early</p> <p>No buses on Sundays</p> <p>Not as many routes on Saturdays</p> <p>BT does not go to Ivy Tech</p> <p>No late night buses for 2nd and 3rd shift workers</p> <p>Legal parking on Kirkwood is extremely difficult to find -- dourlbe parking by restaurant delivery drivers blocks traffic</p> <p>Overpasses on 37/69 are currently not very pedestrian/bike friendly</p> <p>Buses often do not use turn signals when driving downtown</p> <p>Bus route times are not consistant across weekdays, weekends, and evenings -- have to learn different schedules based on the day</p> <p>Not enough seasts on buses</p> <p>Concerns when riding the bus with children: overall, using the bus is extremely difficult with multiple children; no seatbelts/restraints for younger children, which keeps them from getting up and moving around the bus and also prevents them from falling off seats in the case of a sudden stop; limit of 2 strollers per bus, some bus drivers will ask other passengers to move to make way for strollers, but others will not -- bus drivers do not always extend the ramp or use the kneeling bus feature for stollers; on several occasions participants observed drivers requiring reduced fare passes from children riding the bus alone who clearly met the age requirement for reduced race, and would not accept reduced fare without a pass; Bus drivers should drive more slowly when people are standing</p>

Type of Comment	Location	Comment
		<p>and/or there are strollers and children on board</p> <p>Kneeling buses are helpful for getting on the bus, but participants report difficulty getting off the bus -- one participant reported she had her arm trapped in a closing bus door when trying to disembark</p> <p>Route specific:</p> <p>Route 3W is often late to or skips entirely the Whitehall Crossing shopping center</p> <p>4S bus skips the YMCA stop or drives very quickly past the stops</p> <p>More buses on Route 3 and 4</p> <p>Route 3E does not get close enough to apartment complex until after 8PM, participant has multiple children and walking to the mall to catch the bus there was dangerous</p> <p>Bus 1 is blocked by construction, causing people to be late to work</p> <p>Route 2 only runs once an hour after 6PM which is not often enough</p> <p>Lines 1, 2, 3, and 4 need extended hours on Saturdays, especially since many participants rely on the buses on Saturdays for transportation to work</p> <p>New Bus Shelters -- outside WalMart, Williams Brothers Pharmacy, and at the intersection of Leonard Springs and Bloomfield Road near the Circle K</p> <p>Add stop at Alrington Valley Park</p> <p>Overall more connection points between routes -- participants wanted the ability to transfer without having to go downtown to the bus station</p> <p>More consistent announcements, "next stop" to orient passengers to upcoming stops so stops are not missed</p> <p>Longer hours on Saturdays</p> <p>Bus routes on Sundays</p> <p>Consistent schedules across weekdays and weekends</p> <p>More shelters at stops</p> <p>City bus service to local schools</p> <p>More buses generally to reduce crowding</p> <p>Partnerships with local employers (especially Cook) to provide bus/shuttle services to employees -- currently Cook is inaccessible by bus; partnerships for late night bus services for 2nd and 3rd shift workers</p> <p>Routes that go out further (specifically Tapp Road to Southern Indiana Medical Park)</p> <p>Add more bicycle lanes</p> <p>Children under high school age should be able to ride free, high school students should automatically be eligible for reduced fare without a pass</p> <p>Construction zones need to be well-marked For low-income people who are unable to afford cars, transportation is a significant, on-going issue that can drastically affect quality of life. Lack of bus service often negatively impacts employment opportunities -- participants are limited in the positions and shifts they are able to take because of lack of transportation to and from work. Lack of transportation also affects participants' ability to travel for necessary personal errands such as grocery shopping, medical and other appointments for themselves and their children, community resources and events (such as the library or farmer's market) and school and extracurricular events and activities for their children. Many of our participants have multiple young children and/or physical disabilities and challenges that make walking to their destinations difficult or impossible.</p> <p>The main request that participants had was for expanded bus service, particularly on the weekends. Lack of bus service on Sundays means that participants are not able to pick up work shifts or attend church services without arranging for alternate transportation. Participants requested additional bus shelters at bus stops to protect them and their children from the elements while waiting for the bus, which can sometimes be for up to an hour. Participants also expressed a need for expanded bus service on the far west side of town to make getting to Cook and Ivy Tech for work and school more feasible without a car. In addition, participants expressed significant concern about how they would obtain both emergency and non-emergency healthcare after the relocation of Bloomington Hospital away from a centralized location to somewhere that may require a car to access.</p> <p>Clients like that we have a transportation system for them to use in Bloomington</p> <p>Double Map App Only 2 buses in one hour -- should be more frequent</p>

Type of Comment	Location	Comment
		<p>limited bus route is confusing</p> <p>Bus lines are limited to a certain area</p> <p>Buses are dirty and sketchy</p> <p>Creepy men hit on me (a minor) and the driver does nothing</p> <p>Staff is rude</p> <p>Transfers are tricky</p> <p>Long routes takes an hour to get anywhere not downtown</p> <p>Driver drives away when someone is trying to catch the bus (not all the way at the stop yet)</p> <p>New connections</p> <p>More frequent bus schedules</p> <p>More safety precautions for teens</p> <p>Stop at middle and high schools</p> <p>Benches at stops where there are no shelters</p> <p>More shelters for stops that are in unsafe locations</p> <p>Heaters in the shelters -- sometimes I have to stand outside a long time waiting for the bus</p> <p>Many streets do not have sidewalks</p> <p>lack of safety on the bus</p> <p>Construction on roads</p> <p>Tickets are too expensive</p> <p>Lack of assistance in purchasing bus tickets when clients can't afford them</p> <p>Getting a bus pass from the bus station is difficult because I am a minor and needed a paper to prove I am in adult ed but I still had to pay</p>
		<p>I like that you guys cover almost all areas of Btown. I don't like that it is difficult to figure at which buses will take you to where. Also, they don't come enough.</p> <p>One time an hour is tricky. Yes! New connections to/from campus. Bus shelters when entering campus. Sidewalks for all stops. A route that goes to College or Walnut. We need to keep in mind people who have dementia, canes/walkers</p>
		<p>New statios are much better than the old one</p> <p>Bus routes take too long</p> <p>Always late</p> <p>Bus tickets are expensive</p> <p>All the drivers have bad attitudes</p> <p>They never wait for us to transfer</p> <p>Seats on bus are too low</p> <p>More accessibility to bus tickets</p> <p>"We need a bus to get to Monroe Hospital"</p> <p>More access to Rural Transit tickets</p> <p>"The bus should go down Curry Pike for those who need a bus the need to walk up to 3rd with is a lot"</p> <p>"Please give us accessibility on Sundays"</p> <p>Larger bus signs "Sometimes the sidewalk just ends, and we feel unsafe"</p> <p>"We need more shelters to stand under at bus stops, especially with the bad weather/ at night we would feel safer"</p> <p>"I am basically stranded on Sundays, and need to walk everywhere"</p> <p>"I don't liking home in the dark, we need more streetlights by us"</p> <p>"the bus has blown right by me many times."</p>

Charrette #2

The second planning charrette was three days long in July 2018 and was designed to obtain maximum input from community stakeholders on the draft plan. The project team held two informal open studios where community members could meet with the project team and discuss any questions or concerns they had. The project team also met with stakeholder groups including City staff, business associations, and University staff. These stakeholder groups included:

- Downtown Bloomington Inc.
- Monroe County Planning and Public Works
- IU Transportation Planning
- Bloomington Public Works and Streets
- BEDC: Bloomington Economic Development Corporation
- Bloomington Parks Department
- Kirkwood Businesses
- IU Transportation and Capital Projects
- Bloomington Economic and Sustainable Development

At the end of the charrette, the project team presented the draft plan recommendations to the residents at a City public meeting. This event had over 100 attendees. Attendees had the chance to ask questions on-record and to talk with the project team about specific aspects of the plan. Stakeholders and the public voiced the following summarized suggestions and concerns:

2-Way Restoration

- Deliveries on 2-way restored streets would be challenging
- Cross-sections on 2-way restored streets would need to be tailored to specific blocks
- 2-way restoration might cause traffic to slow during peak travel periods
- 2-way restoration could lead to more equitable opportunity for businesses on College Avenue and Walnut Street
- The interaction between buses, students, and vehicles on 3rd Street and Atwater Avenue would need to be considered during 2-way restoration, especially for neighborhoods located in that area

Shared Street on Kirkwood

- Shared street might help businesses and act as a gateway into Downtown Bloomington
- Shared street would provide an easily accessible location for festivities, such as a Fourth of July festival
- It would be important to ensure transit could still access Kirkwood
- Mitigating negative impacts on businesses during construction should be a priority if a shared street is implemented
- Kirkwood has already been re-designed several times
- It would be beneficial to talk with other cities that have implemented shared use streets, such as Columbus, Indiana

Public Transportation

- Public transportation service should be improved since it is currently inefficient to travel across the City via public transportation
- Transportation Plan should discuss the public transportation needs of Bloomington

New and Improved Connections

- Need for increased number of east/west connections
- New hospital location will impact accessibility across town
- Roadways need to accommodate growing population

Appendix C: Demographic Data

General Demographics

At just over 23 square miles and with an estimated population of over 83,000, Bloomington's 2016 population density is significantly higher—nearly 10 times—than Monroe County's. Bloomington's 2016 population density was also greater than the population densities of Fort Wayne and Indianapolis. In comparison to Monroe County in 2016, Bloomington had a lower median household income (\$31,254 compared to \$43,389) and a lower median age (23.7 years old compared to 28.6 years old). Additionally, Bloomington had a higher poverty rate than Monroe County at 38 percent, compared to 25 percent.⁵ In 2016, Bloomington had a higher median property value than the county at \$172,100, compared to \$161,300; Bloomington's median household income also grew at a faster rate than Monroe County.⁶ These differences between Bloomington and Monroe County are strongly connected to IU's location within the City. Bloomington's affordability, population age, and housing cost burden should be considered when planning for the community's transportation future.

Bloomington has a higher level of race and ethnic diversity among its residents compared with Monroe County. As shown in Table 3, the Bloomington community has a higher percentage of Asian persons, African-Americans, and Hispanics than Monroe County.

Table 1. *Race and Ethnic Diversity in Bloomington and Monroe County*

	White	Asian	African-American	Hispanic	Multiracial ⁷	American Indian and Alaska Native
Bloomington	81.5%	9.6%	4.3%	4.1%	3.4%	0.6%
Monroe County	86.7%	6.3%	4.1%	3.3%	2.9%	0.4%

Bloomington's role as an economic and educational hub in Monroe County is evidenced in the centralization of employees and college graduates within the City. In 2016, 56 percent of all employees in Monroe County were in Bloomington, while the City only consists of 6 percent of Monroe County's land area. In addition to IU's student population of over 43,700 students, Ivy Tech Community College's Bloomington campus, located both within and immediately adjacent to the City, serves approximately 10,000 students.

Bloomington residents enjoy slightly shorter commutes on average than across the county, with an average commute time of 15.3 minutes, compared to 17.8 minutes. While both Bloomington and Monroe County households had an average of two cars in 2016, the percentage of Bloomington

⁵ U.S. Census Bureau. American Communities Survey 2016 5-Year Estimate.

⁶ U.S. Census Bureau. American Communities Survey 2016 1-Year Estimate.

⁷ Multiracial is defined by the U.S. Census Bureau as a person who identified with two or more races.

households with less than two cars was approximately 1/3 greater than the percentage of households in all of Monroe County.⁸

⁸ U.S. Census Bureau. American Communities Survey 2016 5-Year Estimate.

Commuter Mode Shift

Transportation has played an important role in Bloomington's history. As the City's economic engine grew, so did its needs and its desire to connect to regional markets. Connections to the railroad in 1853-1854 significantly improved the transport of people and limestone, and led to the establishment of new communities along the lines and growth in the region.

While Bloomington and Monroe County enjoyed significant success immediately following World War II, the region went through an economic downturn in the late 1950s and through the 1970s. During this period multiple long-time businesses—including limestone companies—closed and travel behavior shifted; the opening of College Mall in 1965 reflected changing tastes in retail shopping. Bloomington's transportation network continued to grow during the early 1990s as additional roads, railroads, city sewers, paved streets, and sidewalks emerged along the City's public right-of-way.

Today, Bloomington continues to experience economic growth as the high tech, business, education, non-profit, public, and artisan industries further mature and develop in the region.⁹ For example, from 2014 to 2015, the employment rate grew by 3.46 percent in Bloomington, while the state of Indiana only saw 0.65 percent growth.¹⁰ This trajectory began in the 1980s and has led to significant land use developments and population growth since the 1990s. However, it should be noted that the employment growth has not led to wage growth, which has negatively impacted housing and transportation affordability.

As Bloomington's population and economy has grown over the past 20 years so too have individual transportation habits across the community. It is estimated that the percentage of Bloomingtonians who drove alone to work decreased 5.3 percent, from 66.3 percent to 62.8 percent, between 2010 and 2016. During this period the number of car-free employees in Bloomington increased 1.4 percent, from 4.7 percent in 2010 to 6.1 percent in 2016.¹¹

Figure 11. Bloomington Commuter Mode Shift 2010-2016

	Drove Alone	Walk	Carpool	Public Transit	Bicycle
2010	66.3%	11.1%	9.0%	5.7%	2.3%
2016	62.8%	13.6%	8.7%	6.5%	3.9%
Percent Change	-5.3 %	22.5%	-3.3%	14.0%	69.6%

From 2010 to 2016, walking, public transit, and bicycling commute mode shares significantly increased, with bicycling experiencing the greatest change of almost 70 percent. Walking, public

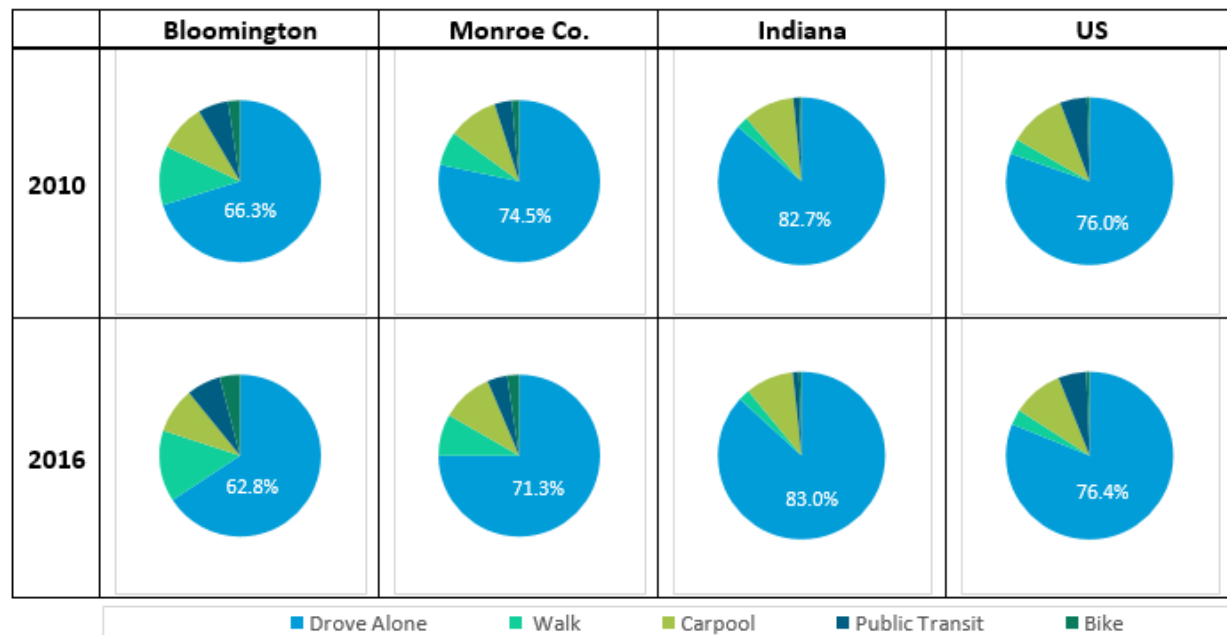
⁹ City of Bloomington. "History of Bloomington and Monroe County." Accessed 4/10/2018.

<https://bloomington.in.gov/about/history>.

¹⁰ U.S. Census Bureau. American Community Survey 2015 1-Year Estimates.

¹¹ U.S. Census Bureau. American Community Survey 2016 and 2010 5-Year Estimates.

transit, and bicycling mode shares also grew in Monroe County from 2010 to 2016, while staying relatively stagnant across Indiana and the U.S.



Year	Jurisdiction	Drove Alone	Walk	Carpool	Public Transit	Bicycle
2010	Bloomington	66.3%	11.1%	9.0%	5.7%	2.3%
2016	Bloomington	62.8%	13.6%	8.7%	6.5%	3.9%
2010	Monroe CO.	74.5%	6.5%	9.5%	3.3%	1.4%
2016	Monroe CO.	71.3%	7.9%	9.8%	3.8%	2.3%
2010	Indiana	82.7%	2.2%	9.5%	1.1%	0.4%
2016	Indiana	83.0%	2.1%	8.9%	1.1%	0.5%
2010	USA	76.0%	2.8%	10.4%	4.9%	0.5%
2016	USA	76.4%	2.8%	9.3%	5.1%	0.6% ¹²

Healthy Bloomington

Nationally, Americans are in poor physical health. Over 1.5 million heart attacks and strokes each year contribute to \$320 billion in annual healthcare costs and lost productivity caused by cardiovascular disease.¹³ One risk factor to heart disease is physical inactivity. While the Centers for Disease Control and Prevention (CDC) recommends a minimum of 30 minutes of moderate physical activity per day, five days a week, Americans fall short. Eighty percent of American adults

¹² U.S. Census Bureau. American Communities Survey 2016 and 2010 5-Year Estimates.

¹³ DC Foundation, *Heart Disease and Stroke Cost America Nearly \$1 Billion a Day in Medical Costs, Lost Productivity*, 2015, <https://www.cdcfoundation.org/pr/2015/heart-disease-and-stroke-cost-america-nearly-1-billion-day-medical-costs-lost-productivity>.

do not meet this recommendation and about 36.5 percent of adults are obese.¹⁴ In comparison to national averages, Bloomington has a more active and less obese population. About 24 percent of adults in Bloomington are not physically active (no leisure-time physical activity) and about 26 percent of adults are obese.¹⁵

Providing infrastructure and encouraging active transportation is one public health and planning approach to improving community health. This approach is supported by the City's Vision, as adopted in 2013 for the City's Growth Policies Plan. The Vision encourages the City to focus on improving public health by investing in green, open spaces and recreational programming.¹⁶ This strategy is also endorsed by the U.S. Surgeon General, who recommends encouraging community design and development that supports physical activity.¹⁷

In addition to providing green, open spaces, building walking and bicycling infrastructure that is accessible to all users is a way to promote physical activity. A study conducted in the U.S. found that in 43 large cities, a one-mile increase in the length of bicycle lanes resulted in a one percent increase in bicycle commuters.¹⁸ Additionally, research conducted in New Orleans showed increases in the number of people bicycling after the introduction of bicycle lanes.¹⁹ Similar to bicycle facilities, proximity to walking facilities impacts communities' physical activity levels. A study of five community clinics that provide health services to underserved populations found that clinical patients who lived near a trail were more likely to walk at least 30 minutes five times per week, compared to those patients who did not have a trail near their home.²⁰

Finally, access to and use of transit is another community design element that is proven to encourage more physically active lifestyles. A review of transit and physical activity studies showed:²¹

- Public transport use leads to an increase of 8 to 33 additional minutes of physical activity per day;
- If public transport use by inactive adults was to increase, there would be a significant increase in the number of sufficiently active adults;
- For adults of all ages, including older adults, public transport users take more steps per day;
- Motor vehicle use is associated with higher obesity rates at the county and individual levels; and

¹⁴ The State of Obesity, "Physical Inactivity in the United States," n.d., <https://stateofobesity.org/physical-inactivity/>.

¹⁵ 500 Cities Project. Center for Disease Control and Prevention.

¹⁶ City of Bloomington. Resolution 13-01, Attachment, Vision Statement.

¹⁷ U.S. Department of Health and Human Services, "Active Living | SurgeonGeneral.Gov," n.d., <https://www.surgeongeneral.gov/priorities/prevention/strategy/active-living.html>.

¹⁸ Dill J, Carr T. Bicycle Commuting and facilities in major U.S. cities: If you build them, commuters will use them. *Transp Res Rec.* 2003; 1828: 116-123.

¹⁹ Parker K, Gustat J, Rice J. Health Impact of bike Lanes in New Orleans, La. *J Phys Act Health.* 2011; 8(Suppl, January).

²⁰ Pierce, J.R., Denison, A.V., Arif, A.A. et al. *J Community Health* (2006) 31: 289. <https://doi.org/10.1007/s10900-006-9014-8>.

²¹ C. Rissel, N. Curac, M. Greenaway & A. Bauman. 2012. *Physical Activity Associated with Public Transport Use- A Review and Modelling of Potential Benefits*. *Int. J. Environ. Res. Public Health.* 9 (2454-2478).

- With an increase in physical activity, public transit users experience significant health benefits.

These studies found that public transit use is associated with less obesity, lower stress levels, and improved air quality. Additionally, public transit use (even as little as once per week) is associated with fewer car trips and more active trips, including walking and bicycling.²²

²² M. Bopp, V. Gayah, M. Campbell. *Examining the Link. 2015. Between Public Transit Use and Active Commuting.* Int. J. Environ. Res. Public Health. 12 (4256-4274).

Appendix D: Bicycle Facility Selection Criteria

The Transportation Plan includes a full-build bicycle network and a high-priority bicycle network. The Plan used the process outlined below in order to identify which bicycle facilities should be installed. If the City of Bloomington or another entity wants to develop a bicycle facility for a street or area that was not included in the Transportation Plan, this appendix provides the process to follow in order to select the appropriate bicycle facility.

Bicycle Facility Types

Bicycle facility types are discussed and defined within the Transportation Plan. Refer to the Plan. All bicycle facility types should follow NACTO design guidance for all design elements of the facility and especially for standard, preferred, and minimum widths.

Bicycle Facility Selection

This section presents a method for selecting particular bicycle facility types and intersection treatments for given contexts. There are no absolute rules for determining the most appropriate type of bicycle facility for a particular location. Roadway speeds, volumes, right-of-way width, presence of parking, adjacent land uses, and targeted bicycle user types are all critical elements of this decision. Studies find that the most significant factors influencing bicycle use are motor vehicle traffic volumes and speeds. Additionally, most people prefer “high comfort” facilities separated from motor vehicle traffic (e.g., multiuse paths, protected bike lanes) or facilities located on local roads with low motor vehicle traffic speeds and volumes (e.g., neighborhood greenways).

Conformance with standard bicycle facility design allows users to anticipate whether they would feel comfortable riding on a particular bicycle facility and plan their trips accordingly. A process consisting of the following four steps can help determine the appropriate bicycle facility type and intersection/crossing treatment to provide:

- Step 1: Identify Design User
- Step 2: Consider Traffic Speed and Volume
- Step 3: Select a Bicycle Facility Type
- Step 4: Select Intersection/Crossing Treatment

Step 1: Identify Design User

One of the most important factors to consider during bicycle facility design is the type of person the facility is meant to attract. User preferences vary by bicyclist skill level, trip purpose, and individual characteristics. As the level of separation increases, a facility becomes more attractive to a wider range of bicycle users and potential bicyclists, thereby making bicycling a more viable and preferred transportation mode. The most commonly used framework is the four types of bicyclists

framework (estimated percent of population): strong and fearless (less than 1%); enthused and confident (7%); interested but concerned (60%); and “No Way” not interested (33%).

During the planning phase of a particular bicycle facility, the expected user group should be determined based on factors such as land use (e.g., proximity to schools, parks, and commercial areas), connections to transit, and community goals.

Step 2: Consider Traffic Speed and Volume

Bicyclists’ comfort levels decrease proportionally with increases in motor vehicle volumes and a widening differential between the speed of bicycles and the speed of adjacent motor vehicle traffic. As a result, both traffic volume and speed are important considerations when choosing an appropriate bicycle facility type for a given location. In general, as both volume and speed increase, so does the need for greater separation of the bicycle facility from traffic in order to appeal to a wider cross-section of people. Wider bicycle facilities (i.e., more than the standard five feet) can mitigate the effects of volume and speed, albeit to a lesser extent than increasing facility separation with painted buffers; however, the best tool to appeal to the widest range of users is to use physical barriers to separate the bicycle facility from motor vehicle traffic.

Bicycle Facility Selection Chart

Urban and Suburban Roadways

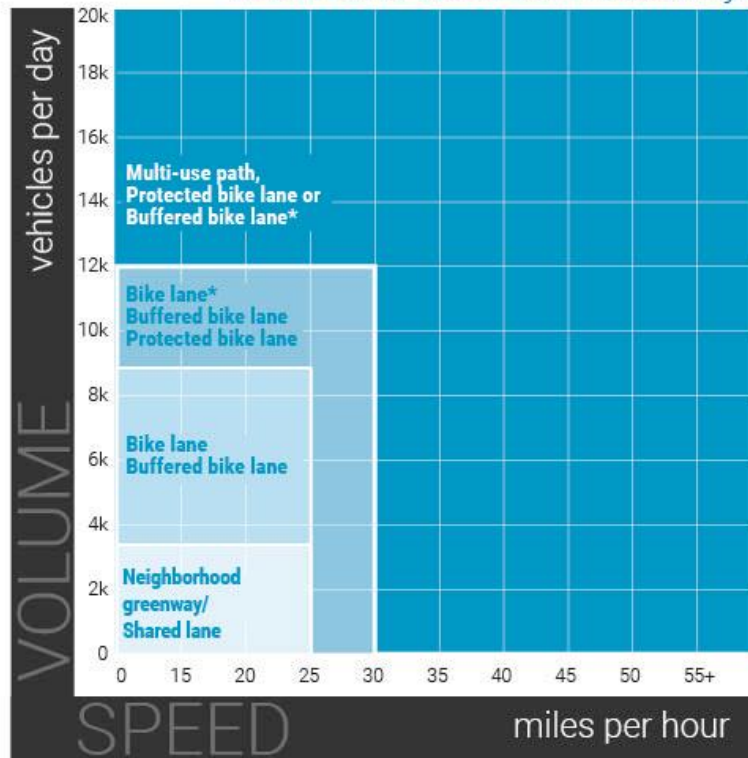


Figure 14 Volume, Speed and Recommended Facility Type

*Facility not likely to attract a broad spectrum of users given vehicle speed and volumes.

Chart is based on Level of Traffic Stress (Mekuria, Furth, Nixon, 2012) and empirical behavioral research on cyclist route choice (Lowry, Furth, Hadden-Loh, 2016).

The above figure combines both speed and volume into a single chart to help identify an appropriate treatment for a given roadway assuming the “interested but concerned” design user. Multiple facility types are recommended for each threshold of speed and volume. The community context and feasibility can help determine which is the most appropriate facility type.

The following facility type recommendations are based on Figure 14 and adjusted slightly for local context. This provides a default recommendation that can be evaluated for the specific context of the street and network goals of the bicycle facility:

- Multiuse Path/Protected Bike Lane/Buffered Bike Lane- Recommended when ADT is greater than/equal to 12,000 or speed is greater than/equal to 30 mph.
- Protected Bike Lane/Buffered Bike Lane/Bike Lane- Recommended when speed is greater than/equal to 25 and less than 30 mph or ADT is greater than/equal to 8,500 but less than 12,000.
- Bike Lane/Buffered Bike Lane- Recommended when speed is less than 25 mph and ADT is greater than/equal to 3,000 but less than 8,500

- Neighborhood Greenway/Shared Lane- Recommended when speed is less than 20 mph and ADT is less than 3,000

Step 3: Select a Bicycle Facility Type

This step begins with a determination of whether the preferred bicycle facility type resulting from Step 2 can be accommodated within the right-of-way, which may entail reallocating existing street space. If it can be accommodated, the bicycle facility selection process is over. If a determination is made that it cannot be accommodated within the right-of-way and budgetary constraints prevent right-of-way acquisition at the time, then other options should be explored to serve the design user. Options may include:

- selecting a parallel – yet proximate – route,
- managing motor vehicle speeds so that a bicycle facility with less separation can be installed while still maintaining a relatively high level of comfort, or
- diverting motor vehicle traffic to other prioritized motor vehicle routes.

A critical consideration in selecting a bicycle facility type is return on investment. A conventional bike lane may be easy to implement, but may not attract much use. A protected bike lane may be more difficult to implement (e.g., requiring parking removal, lane reduction, etc.), but if designed properly, will attract higher ridership and contribute to a viable multimodal transportation system that serves the wider population.

Step 4: Select Appropriate Intersection/Crossing Treatment

Maintaining bicycle facility level of comfort at street crossings and intersections is critical to providing a consistent and continuous facility and attracting a wider range of bicyclists. While most available research is focused on operational safety, the guidance provided in the following table also considers comfort (i.e., perceived safety).

This guidance provides guidelines that are to be considered during the planning phase. More detailed analysis may be required to determine the most appropriate crossing treatment. While it is ideal to provide high comfort crossing treatments like hybrid beacons and traffic signals at all bicycle facility crossings that meet the guidance provided in the table, it may be cost prohibitive to do so given the number of roadways that will likely meet the criteria. Hence, for practical purposes, the high comfort crossing treatments may be prioritized on bicycle facility networks that provide regional connection or have a high potential for increasing bicycle mode share by connecting destinations such as shopping districts, major institutions, major employers, schools, and transit stations. Furthermore, existing traffic signals may also be modified to provide a Leading Bicycle Internal (LBI) that allows bicyclists to establish themselves at the intersection before the concurrent vehicle phase turns green. This treatment greatly increases the visibility of the bicyclists and improves safety at the intersection.

It should also be noted that, depending on the location, available right-of-way, and project budget, additional geometric improvements should also be considered. These include:

- Grade separation
- Traffic circles
- Protected intersections
- Curb extensions
- No-Parking restriction at intersections, especially on side-street approaches to improve intersection sight distance

The Intersection/Crossing Treatment Criteria Chart below provides guidance, but context-specific factors should also be considered and may result in a different crossing treatment.

Intersection/Crossing Treatment Criteria

ADT	< 3,000		>3,000-9,000			>9,000-12,000			>12,000-15,000			>15,000		
# of Lanes	2	3	2	3	4 to 5	2	3	4 to 5	2	3	4 to 5	3	4 to 5	6+
≤ 25 mph	1	1	1	2	2	3	3	3	3	3	3	4	4	4
30 mph	1	2	2	2	2	3	3	3	3	3	3	4	4	4
35 mph	1	2	2	3	3	3	3	3	4	4	4	4	4	4
40 mph	2	2	3	3	3	4	4	4	4	4	4	4	4	4
45+ mph	2	2	4	4	4	4	4	4	4	4	4	4	4	4

1 No crossing treatment needed* **2** Median Crossing Island (install on any roadway with 3 lanes or more) **3** RRFB (include crossing island if roadway is 3 lanes or more) **4** Pedestrian Hybrid Beacon OR TOUCAN OR Ped Signal is recommended, roadway with 3 or more lanes should include crossing island. The decision of whether to install a hybrid beacon or traffic signal is location specific and volume warrants should be considered.

Notes: *Bicycle crossing markings should be installed in combination with all treatments. High visibility crossing warning signs assumed at all unsignalized crossings. RRFB may not be appropriate in locations where there is a combination of high traffic volumes and high ped/bike volumes, or on some multi-lane roads. On roadways where speeds exceed 40 MPH, efforts should be made to lower speeds before installing an unsignalized at-grade crossing. Grade separation may be appropriate in locations where vehicle speeds and volumes are high, there are multiple lanes in each direction, and the installation of a traffic signal or high comfort intersection treatments are infeasible. However, the bridge or underpass must be conveniently accessed and designed for people of all ages and abilities in order to maximize compliance and safety.

Appendix E. Detailed Design Framework and Step by Step Guidance

This document describes the draft typologies for the Bloomington Transportation Plan (Plan). These typologies were generated in alignment with the multimodal transportation policies outlined in the most recent Comprehensive Plan. The draft typologies consider local context, follow complete streets guidance, and recognize the City's constrained ability to expand or widen most roadways.

Summary of Typologies

Street Typology	Land Use Context and Function	Transportation Context and Function	Typical Features
Shared Street Candidate Streets: Selective local streets in the downtown and other denser urban commercial areas; Kirkwood Width: 70 feet	<ul style="list-style-type: none"> • Medium to high density • Mixed-use, retail, downtown office, dense residential • Buildings close to street 	<ul style="list-style-type: none"> • High volumes of pedestrian activity and bike traffic • Low volumes of autos • Little to no transit • Extremely low speeds • ADA-compliant slopes • Blends transportation and public space 	<ul style="list-style-type: none"> • Narrow, undelineated space shared by all modes in addition to pedestrian-only space. • Designated parking stalls, street furniture, sidewalk cafes, small-scale lighting • Street trees and landscaping • Unique pavement
Neighborhood Residential Street Candidate Streets: Any local street in residential neighborhoods Width: 59 feet	<ul style="list-style-type: none"> • Low to medium density • Single-family and multi-family residential • Buildings with moderate setbacks from the street 	<ul style="list-style-type: none"> • Slow speeds • Focus on pedestrian safety • Traffic calming • Typically allows on-street parking 	<ul style="list-style-type: none"> • No centerline • Sidewalks • Neighborhood greenways • Unmarked on-street parking • Street trees and landscaping
Main Street Candidate Streets: College, Walnut, (from 17 th St to 1 st St) Typical ROW Width: 88 feet	<ul style="list-style-type: none"> • Medium to high density • Primarily commercial with small to medium businesses and mixed use • Buildings close to street • Outdoor events & dining • Often has historic character 	<ul style="list-style-type: none"> • High volumes of pedestrian activity and bike traffic • Medium volumes of autos and transit • Low speeds • Facilitates access • Often includes metered on-street parking 	<ul style="list-style-type: none"> • 2 travel lanes and optional center turn lane • Wide sidewalks • Bike lanes or other bicycle facility • On-street parking • Street furniture, sidewalk cafes, small-scale lighting • Street trees and landscaping
General Urban Street Candidate Streets: Rogers St 10 th St Width: 90 feet	<ul style="list-style-type: none"> • Medium to high density • Mixed-use, downtown office, dense residential • Buildings close to street 	<ul style="list-style-type: none"> • Medium to high pedestrian activity and bike traffic • Medium to high volumes of autos and transit • Low speeds • Facilitates access • Often includes on-street parking 	<ul style="list-style-type: none"> • 2 or 3 travel lanes • Wide sidewalks • Bike lanes • Marked on-street parking • Street trees and landscaping

Street Typology	Land Use Context and Function	Transportation Context and Function	Typical Features
Neighborhood Connector Street Candidate Streets: Henderson St 2nd St Width: 74 feet	<ul style="list-style-type: none"> • Low to medium density • Residential with occasional businesses • Buildings with moderate setbacks from the street • Connect multiple neighborhoods 	<ul style="list-style-type: none"> • Medium to high pedestrian activity and bike traffic • Medium volumes of autos and transit • Low to moderate speeds • Facilitates access while providing continuous walking and bicycling routes 	<ul style="list-style-type: none"> • 2 travel lanes • Sidewalks • Bike lanes • Some on-street parking • Street trees and landscaping
Suburban Connector Street Candidate Streets: Hillside Dr College Mall Rd Width: 95 feet	<ul style="list-style-type: none"> • Low to medium density • Suburban commercial, residential, and institutional areas • Buildings with moderate to deep setbacks 	<ul style="list-style-type: none"> • High volumes of autos and transit • Low to mid pedestrian activity (higher on transit routes) • Low bike traffic • Moderate to high speeds 	<ul style="list-style-type: none"> • 2 or 4 travel lanes • Median or center turn lane • Sidewalks or multiuse path • Protected bike lanes or multiuse path • Street trees and landscaping

Pedestrians should receive the greatest priority, because they are the most vulnerable and the most space-efficient road user. However, the priority may vary by project based on unique issues within a corridor. For example, major transit routes may also necessitate shifting modal priorities. Deviations from the modal priorities included in the text of the Plan (Figure 17) should be documented during the project scoping and design processes.

Design Framework

The Transportation Plan will assist City staff and consultants in making design decisions by providing minimum and preferred parameters—as well as prioritization for tradeoffs—for each typology. The decision-making framework includes three steps:

- Step 1: Typology Selection
- Step 2: Determine Design Parameters
- Step 3: Make Tradeoffs Based on Typology Priorities

Step 1: Typology Selection

Typologies are selected based on 1) large-scale context, 2) functional classification, and 3) small-scale context. This step has already been completed by the Plan for all current and proposed streets. This first step, the process for determining a street typology, is included for consideration of future streets that were not included in the Plan.

Large-scale context zones are classified as follows:

Large-Scale Context Zones

- Commercial Downtown – the central business district
- Commercial Limited – older, small-scale mixed use areas, including traditional “main streets” and may include some higher-density residential and occasional institutional uses (in pre-redevelopment areas)
- Commercial General/Arterial– includes both modern mixed use centers and major office and retail developments that are envisioned to redevelop into modern mixed use at some point in the future
- Residential Core– smaller footprint buildings, mix of single-family and traditional multi-family, short setbacks and narrow lots
- Residential Other, PUD – post-war neighborhoods, predominately single-family with deeper setbacks and wider lots
- Parks/Quarry– includes linear parks/greenbelts, cemeteries, golf courses, and other open spaces
- Industrial/Institutional/Medical– variety of forms, from zero-lot-line buildings to buildings set considerably back from the street

Functional Classification

Designing streets based solely on functional classification is problematic because it often ignores context and prescribes a one-size-fits-all design solution. However, sources of federal funding are allocated to specific classifications of streets; therefore each street in Bloomington will continue to have an assigned functional classification. Functional classifications include (from highest traffic volume to lowest): Major Arterial, Minor Arterial, Collector, and Local. The typologies outlined herein serve to enhance the functional classification system and increase the context-sensitivity of street design.

Typology Selection Matrix

Typology selection should consider the existing and future transportation and land use contexts for the corridor.

Land Use / Zoning	Functional Classification		
	Local	Collector	Arterial
Commercial Downtown	General Urban	General Urban	General Urban
	Shared Street	Main Street	Main Street
Commercial Limited	Main Street	Main Street	Main Street
	General Urban	General Urban	General Urban
	Shared Street		
Commercial General, Commercial Arterial, Medical	Main Street	Main Street	General Urban
	General Urban	General Urban	
	Neighborhood Connector	Neighborhood Connector	Suburban Connector
	Shared Street		
Residential Core	Neighborhood Residential	Neighborhood Connector	General Urban
	Shared Street		
Residential Other, PUD	Neighborhood Residential	Neighborhood Connector	Suburban Connector
	Shared Street		
Parks, Institutional	Neighborhood Residential	Neighborhood Connector	General Urban
	Shared Street		Suburban Connector
Industrial, Quarry	General Urban	General Urban	General Urban
	Neighborhood Connector	Suburban Connector	Suburban Connector

Typology Small-Scale Context

More challenging is defining the small-scale context, which is based on building orientation and scale, right-of-way width, and modal priority. Selecting a typology when more than one is potentially appropriate based on large-scale context and functional classification will require careful consideration of the unique characteristics of current and future buildings and right-of-way for each project.

Step 2: Determine Design Parameters

The following tables illustrate the typical parameters for street design. Deviation from these parameters should be carefully considered and documented appropriately.

Figure 15 Roadway Zone Parameters

Typology	No. of Travel Lanes ¹	Lane Width ²	Center Turn Lane/ Median ³	Primary Bicycle Facility Type ⁴	On-Street Parking ⁵	Target Speed ⁶ (mph)
Shared Street	No centerline	20-22' Total	None	No dedicated bike facility	Optional	10
Neighborhood Residential Street	No centerline	20' Total	None	Neighborhood Greenways or no dedicated bike facility	Non-delineated	15-20
Main Street	2	10'	Optional	Protected, Buffered or Conventional Bike Lanes	Recommended; Delineated	20-25
General Urban Street	2	10'	Optional	Protected, Buffered, or Conventional Bike Lanes	Recommended; Delineated	25
Neighborhood Connector Street	2	10'	None	Protected, Buffered, or Conventional Bike Lanes	Optional	25
Suburban Connector Street	2-4	10'	10'	Protected Bike Lanes or Multiuse path	None	25-35

¹ Number of Travel Lanes:

- Specified number of travel lanes represents the default or typical configuration. Street designs can deviate (e.g., a two-lane Suburban Connector) if warranted by unique context or constraints. Thorough documentation should be provided for any deviations.

² Lane Width:

- All lane width measurements are taken from the center of stripe or face of curb. Lanes located adjacent to a vertical curb typically require one foot of additional width above the minimum.
- Lane width can be reviewed and altered in order to better accommodate transit, especially along high-volume transit routes.
- Lane width can be reviewed and altered along truck routes. The minimum practicable width shall be used for truck routes. The following typologies are not compatible with truck routes: Shared Street, Neighborhood Residential, and Neighborhood Connector. The General Urban and Main Street typology may be applied to truck routes with careful consideration of impacts on pedestrian and bicycle modes.
- For new streets only, the lane width for Neighborhood Residential Streets will use the following guidelines. The street must still include other elements required by the typology.

The chart only impacts the street width based on expected ADT and on-street parking and does not change the overall total required right of way width.

Expected ADT	On-Street Parking (sides of the street)	Face-of-Curb to Face- of-Curb Width
<500	0	20'
500 – 1500	0	20'
>1500	0	22'
<500	1	22'
500 – 1500	1	27'
>1500	1	28'
<500	2	28'
500 – 1500	2	30'
>1500	2	34'

³ *Center Turn Lane/Median:*

- Center turn lanes and medians are considered optional for Main Streets. While these treatments increase crossing distances for pedestrians and consume right-of-way that could otherwise be used for bike lanes, sidewalk cafés, etc., they also have the possible benefit of providing space for pedestrian refuge islands. To facilitate intersection operations on streets without center turn lanes or medians, on-street parking can be removed to allow left turn lanes as needed to maintain LOS E or better during peak periods. The most appropriate use of center turn lanes on Main Streets is where block lengths are less than 300 feet; in these locations, continuous center turn lanes may allow the street to maintain LOS E or better during peak periods.
- For typologies in which a median is not preferred or optional, it may still be beneficial to provide crossing islands or non-continuous centerline traffic-calming islands in certain locations.

⁴ *Bicycle Facility Type:*

- This column indicates the type of bicycle facility that is typically most appropriate for the street typology. This does not indicate a minimum or maximum standard. A detailed discussion of bicycle facility type is provided in the Plan.
- Shared Streets do not separate modes; therefore, no dedicated bicycle facility is needed.
- Neighborhood Residential Streets are typically narrow and with very low traffic volumes. These streets are generally great candidates for Neighborhood Greenways. Separated bicycle facilities are typically unnecessary, although wayfinding and traffic calming can be beneficial for people biking.
- Suburban Connector Streets default to 10' multiuse paths with 5' separation from the street. The AASHTO Guide for the Development of Bicycle Facilities (2012) states that a multiuse path is not a substitute for the provision of on-road accommodation such as paved shoulders or bike lanes, but may be considered in some locations in addition to on-road bicycle facilities. Separated bike lanes and buffered bike lanes are alternatives that may be appropriate in some situations.
- If this Plan or other related plans specify a bicycle facility that differs from the default facility shown in the table, then the facility which provides the highest level of comfort to the broadest range of potential bicyclists should be provided.

⁵ *On-Street Parking:*

- The preferred configuration of on-street parking, where provided, is parallel. Other options for on-street parking can be explored for each typology so long as alternative configurations are compatible with the modal priority and goals for the project. Where angled on-street parking is provided on streets especially on streets with bike lanes, back-in angle configurations are preferred.
- The preferred width for parallel parking lanes is 8 feet. Narrower (7-foot) lanes may be provided in constrained environments or to allow wider bike lanes. Decisions regarding parking lane width when adjacent to bike lanes should consider the amount of parking, parking turnover rates, and vehicle types. When parallel parking and bike lanes are provided adjacent to each other, the minimum combined width of the two is 14 feet. When in constrained environments, where there is low parking utilization or turnover adjacent to an uphill (low speed) bicycle lane, combined widths as low as 12 feet may be allowable.
- Shared Streets may include on-street parking in randomly-spaced stalls. Street designs should avoid continuous rows of cars.
- Neighborhood Connector Streets may include on-street parking if sufficient space is available after the inclusion of bike lanes.
- General Urban Streets may include on-street parking in urban contexts (Downtown, Neighborhood Commercial, Mixed-Use and Major Commercial).

⁶ *Target Speed:*

- Target speed is the speed at which people are expected to drive. The target speed is intended to become the posted speed limit. Per the Institute of Traffic Engineers, the target speed should be set at "the highest speed at which vehicles should operate on a thoroughfare in a specific context, consistent with the level of multimodal activity

generated by adjacent land uses to provide both mobility for motor vehicles and a safe environment for pedestrians and bicyclists.” In other words, target speeds—and, by extension, posted speed limits and design speeds—should balance the needs of all anticipated street users based on context.²³

- Design speed is a tool used to determine the various geometric features of the roadway. When designing a roadway, the design speed should equal the target speed. As is feasible, measures should be considered to reduce the operating speed to match the target speed, examples of which are listed below.
- ITE outlines 12 measures that can be used to lower design speeds and thereby achieve appropriate target speeds. These measures represent options for lowering design speed and are not an exhaustive list of all approaches:
 - Setting signal timing for moderate progressive speeds from intersection to intersection;
 - Using narrower travel lanes that cause motorists to naturally slow their speeds;
 - Using physical measures such as curb extensions and medians to narrow the traveled way;
 - Using design elements such as on-street parking to create side friction;
 - Minimal or no horizontal offset between the inside travel lane and median curbs;
 - Eliminating superelevation;
 - Eliminating shoulders in urban applications, except for bicycle lanes;
 - Smaller curb-return radii at intersections and elimination or reconfiguration of high-speed channelized right turns;
 - Paving materials with texture (e.g., crosswalks, intersection operating areas) detectable by drivers as a notification of the possible presence of pedestrians;
 - Proper use of speed limit, warning, advisory signs and other appropriate devices to gradually transition speeds when approaching and traveling through a walkable area;
 - Vertical elements (raised crosswalk, speed hump, speed cushion); and,
 - Horizontal elements (small radii curves, chicanes, etc).²⁴
- For street typologies with a proposed range of target speeds, designers should consider the inclusion of measures to keep the target speed at the low end of the allowable range.

²³ Institute of Traffic Engineers, “Designing Walkable Urban Thoroughfares: A Context Sensitive Approach.” 2010.

²⁴ Ibid.

Figure 16 Pedestrian Zone Parameters

Typology	Frontage Zone ¹ Door swings, awnings, café seating, retail signage displays, building projections, landscape areas	Pedestrian Zone ² Clear space for pedestrian travel, should be clear of any and all fixed obstacles	Greenscape/Furnishing Zone ³ Street lights, utility poles, street trees, landscaping, bike racks, parking meters, transit stops, street furniture, signage	Total Width ⁴ (Lower value excludes Frontage Zone)
Shared Street	8'	10'	5'	15'-23'
Neighborhood Residential Street	N/A	6'	5'	11'
Main Street	8'	7'	4'	11'-19'
General Urban Street	8'	10'	8'	18'-26'
Neighborhood Connector Street	8'	7'	8'	15'-23'
Suburban Connector Street	N/A	12' (Multiuse Path)	8'	20'

¹ **Frontage Zone:**

- Where buildings are located against the back of the sidewalk and constrained situations do not provide width for the Frontage Zone, the effective width of the Pedestrian Zone is reduced by 1 foot as pedestrians will shy away from the building edge.
- Wider frontage zones are acceptable where conditions allow. The preferred width of the Frontage Zone to accommodate sidewalk cafes is 6 to 8 feet.

² **Pedestrian Zone:**

- In locations with severely constrained rights-of-way, it is possible to provide a narrower Pedestrian Zone. The Americans with Disabilities Act (ADA) minimum 4-foot wide pedestrian Zone can be applied using engineering judgement and should account for a minimum 1-foot shy distance from any barriers.
- Any pedestrian zone intended to also convey bicycle traffic (e.g., a multiuse path) should be a minimum of 10 feet wide. For short segments through constrained environments, 8-foot wide multiuse paths are acceptable.

³ **Greenscape/Furnishing Zone:**

- The minimum width necessary to support standard street tree installation is 5 feet. While 5 feet is the minimum preferred width, greenscape/furnishing zones with widths less than 5 feet are preferable to no greenscape/furnishing zone being provided.
- Utilities, street trees and landscaping, and other sidewalk furnishings should be set back from curb face a minimum of 18 inches.

- Green Stormwater Infrastructure (GSI) features typically require a minimum of 7 feet of width. The final dimensions—if GSIs are to be included—will be established based on the context of each landscape area.
- Where on-street parking is not present, a wider Greenscape/Furnishing Zone should be prioritized over the width of the Frontage Zone.
- The preferred width of the Greenscape/Furnishing Zone to accommodate sidewalk cafes is 6 to 10 feet.
- Shared Streets include lighting, landscaping, bike racks, furnishings, and other elements; generally, these elements will still be within the greenscape/furnishing zone, but that will be determined with future, detailed Shared Street design based on context and goals.

⁴ ***Total Width:***

- The minimum total width for any street with transit service is 8 feet (preferably 10 feet) in order to provide space for a minimum 5-foot by 8-foot deep landing zone.

Step 3: Make Tradeoffs Based on Typology Priorities

The following matrix provides guidance for designers when weighing tradeoffs when faced with budgetary constraints, limited right-of-way, and operational challenges. Judgements regarding the inclusion of certain design elements (e.g., bike lanes) or where to allocate additional width when right-of-way allows should be based on the priorities outlined in this matrix, depending on typology. Features that are indicated to be medium or lower priorities should not be dismissed from inclusion unless constraints make it infeasible to include all the default elements for the typology.

Figure 17 Typology Prioritization Matrix

Typology	Bicycle		Pedestrian						Auto			
	On-Street Bikeways (Bike Lanes or Separated)	Multituse Paths	Frontage Zone	Pedestrian Zone	Greenscape / Furnishing Zone	Curb Extensions, Parklets and Other Buffers	Refuge Islands	Marked Crosswalks	Travelway/Lane Width	On-Street Parking	Median/Center Turn Lane	Traffic Calming/ Feature Management
Shared Street												
Neighborhood Residential												
Main Street												
General Urban												
Neighborhood Connector												
Suburban Connector												

Higher Priority

Medium Priority

Lower Priority

Not typically Compatible

Default to Typology Priority (applies to overlays)

Appendix F. Pedestrian Focus Area Methodology

The project team conducted a weighted sum to identify pedestrian focus areas in Bloomington. The methodology incorporates street network, land-use, sociodemographic, and transit factors that are correlated with walking, as shown through research and from feedback received during the project. Census blocks were scored according to these factors, as described in the paragraphs that follow. Census blocks are used because they provide a fine level of detail in urban areas and can be linked with Census population, employment, and poverty data. The total score for each Census block is an aggregate of the individual factor scores. The factors used in the analysis are displayed in the following table. A more detailed explanation of the factors, as well as how they were measured and calculated, follows.

Table 1. Pedestrian Focus Area Factors

Factor	Geography	Calculation	Scale	Weight
Percent Minority	Block Group	Non-white population/total population	85 th percentile max points	5
Percent in Poverty	Block Group	Below poverty line/total population for which poverty is measured	85 th percentile max points	10
Percent without Vehicles	Block Group	Occupied households without vehicles/total occupied households	85 th percentile max points	10
Percent Inactive Adults	Census Tract	Inactive adults (as defined by the CDC)/all adults	85 th percentile max points	5
Percent with Mobility Disabilities	Census Tract	Population with hearing, vision, cognitive, ambulatory difficulty/total population	85 th percentile max points	10
Population Density	Block Group	Population/land area (square-miles)	85 th percentile max points	10
Employment Density	Block Group	Employed population/land area (square-miles)	85 th percentile max points	5
Intersection Density	Block	Intersections within quarter-mile/land area (square-miles)	85 th percentile max points	10
School Presence	Block	Any school within census block	Binary	15
Park Presence	Block	Any park within census block	Binary	5
Transit Presence	Block	Any bus stop within census block	Binary	15
Sidewalk Modification Factor	Block	Percent of road network that does not have a sidewalk	0 – 100%	N/A

Percent Minority

The percent of non-white populations is an indicator of traditionally underserved and underrepresented populations. Including this factor will ensure that future analyses continue to

include traditionally underrepresented populations. The blocks at or above the 85th percentile of percent of non-white population were given the maximum of 5 points; the remaining blocks were pro-rated based on their ranking compared to the 85th percentile value.

Percent of Households Below the Poverty Line

Research indicates that people living in households below the poverty line are more likely to depend on transit, walking, or biking to get around.²⁵ The households-in-poverty data is only available for Census block groups, which are larger geographic areas composed of multiple Census blocks. For consistency with other factors, the household poverty score of each block group was assigned to all the Census blocks within it. The block groups at or above the 85th percentile of percent in poverty were given the maximum of 10 points; the remaining block groups were pro-rated based on their ranking compared to the 85th percentile value.

Percent Without Vehicles

This factor identifies the percent of population with no access to a motor vehicle in a Census block group. Areas with fewer cars are more likely to have a need for safe, connected sidewalks because walking is often either the sole mode of transportation or a way to get to a transit stop. The block groups at or above the 85th percentile of percent of households with no vehicle access were given the maximum of 10 points; the remaining block groups were pro-rated based on their ranking compared to the 85th percentile value.

Percent Inactive

About 24 percent of adults in Bloomington are not physically active (no leisure-time physical activity) and about 26 percent of adults are obese.²⁶ Providing infrastructure and encouraging active transportation is one public health and planning approach to improving community health. This strategy is also endorsed by the U.S. Surgeon General who recommends encouraging community design and development that supports physical activity.²⁷ The tracts at or above the 85th percentile for physical inactivity rates were given the maximum of 5 points; the remaining tracts were pro-rated based on their ranking compared to the 85th percentile value.

Percent with a Mobility Disability

This factor identifies the percent of population with a mobility disability in a Census tract. These individuals are more likely to rely on pedestrian infrastructure to access transit, amenities, and services. The tracts at or above the 85th percentile of percent of individuals with a mobility disability were given the maximum of 10 points; the remaining tracts were pro-rated based on their ranking compared to the 85th percentile value.

²⁵ Dill, Jennifer, et al. "Predicting Transit Ridership at the Stop Level: The Role of Service and Urban Form." 92nd Annual Meeting of the Transportation Research Board, 2013

²⁶ Center for Disease Control and Prevention. 500 Cities Project.

²⁷ U.S. Department of Health and Human Services, "Active Living | SurgeonGeneral.Gov," n.d., <https://www.surgeongeneral.gov/priorities/prevention/strategy/active-living.html>.

Population Density

Population density is another major determinant for pedestrian trips. In short, areas with more people have higher levels of walking. Census blocks with population density at or above the 85th percentile were given the maximum of 10 points; scores for blocks with lower density were pro-rated up to the 85th percentile value.

Employment Density

Employment density is another major determinant for pedestrian trips. People walk to areas with high employment for a variety of reasons, including jobs, shopping or errands. Moreover, some areas with high employment see a lot of midday walking activity as people go to lunch or nearby errands. The employment score of each Census block was assigned based on the number of jobs provided by the Census. Census blocks at or above the 85th percentile for employment density received the maximum score of 10 points; blocks below that were pro-rated up to the 85th percentile value.

Intersection Density

Research into travel mode choice has shown that intersection density is highly correlated with pedestrian trips and transit ridership, significantly more so than any other factor.²⁸ Areas with high intersection density tend to have a higher concentration and diversity of utilitarian destinations, resulting in a greater number of short-distance utilitarian trips. The intersection density score for each Census block was found by counting the number of intersections within a ¼-mile buffer of each block and normalizing by the area of the block. Census blocks meeting the 85th percentile or higher for the number of intersections per mile were given a score of 10; the remaining scores were pro-rated based on their density of intersections compared to that value.

Access to Parks and Schools

Safe access to parks and schools is important for healthy communities. Parks provide safe places for physical activity, and walking to school instills healthy active transportation habits at a young age. Walking to school also provides a form of daily physical activity for children and has benefits for improving attention in the classroom. Additionally, children walking to school also results in fewer motor vehicle trips. Census blocks with at least one park were weighted 5 points while Census blocks with at least one school received 15 points. Schools are weighted higher than parks to acknowledge that the population walking or bicycling to and from these facilities are children, who are more vulnerable than adults and generally cannot legally drive a car.

Transit Routes

People walking to and from the bus are another important user group to consider. People near a bus stop are more likely to use transit. Census blocks that have at least one bus stop within their boundary received 15 points.

²⁸ Ewing, Reid, and Cervero Robert. "Travel and the built environment: a meta-analysis." *Journal of the American Planning Association*, 76 (2010): 265-294.

Sidewalk Modification Factor

A sidewalk modification factor was calculated to acknowledge that certain areas in Bloomington currently have sidewalks. This factor was created by calculating the percent of road network in each Census block that is missing sidewalks. The sidewalk modification factor was then multiplied by the total sum of all other factors to generate a total score. Therefore, areas with fewer sidewalks in comparison to the road network are given a higher priority.